NATUR CYMRU

A Review of WILDLIFE in Wales

Rhif/Number 7 • Haf/Summer 2003

- Trees make air
- In their element – coastal otters in north Wales
- Llên y llysiau
- Food shopping with the environment in mind
- The mysterious Welsh sorbs
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- Gofal Gwledig Pontbren experiment
- Getting it locally: *food initiatives in Powys*
- Cardigan Bay & its conservation importance
- Nodiadau'r Cynulliad/Assembly Notebook
- Ramsey Island
- Hysbysfwrdd/NoticeBoard

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A Review of WILDLIFE in Wales

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Bwriedir i *Natur Cymru* hyrwyddo a chyfnewid gwybodaeth am fioamrywiaeth a hyrwyddo dadl. Nid yw'r farn a fynegir yn y cylchgrawn hwn o anghenraid yn farn y noddwyr. Os oes gennych wybodaeth, erthyglau neu waith celf y credwch a allai fod o ddiddordeb i'r darllenwyr, cysylltwch â'r Golygydd os gwelwch yn dda.

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Golygyddol

Yr adeg yma o'r flwyddyn, fe fydd llawer o'm gwaith i'n ymwneud â phryfed: yr ieir bach y glaw cyntaf yn y gwair hir; yr ieir bach tramor yn torheulo ar y teras; neu'r chwilen fursen hardd yn gorffwys ar un o frigau'r ddraenen wen gyfagos, ac wedyn yn gwibio eto mewn cylchoedd yn yr heulwen cyn glanio ar un o ddail y fiaren. Maen nhw'n fy atgoffa i o'r profiadau yna o bleser pur pan fydd gwefr a harddwch byd natur yn dod yn fyw. Am eiliad, fe gaiff prysurdeb a sŵn bywyd dyn eu llonyddu.

Rhodd yw'r awydd i fod yn rhan o fyd natur. Awydd sy'n rhannol wedi'i etifeddu, ac yn rhannol wedi'i ddysgu. I mi, heb fyd natur, fe fyddwn i'n byw mewn byd unlliw. Ond tybed a ydyn ni'n trosglwyddo'r un awydd i'n plant? Neu a yw cenhedlaeth yr oes wybodaeth yma'n colli'r cysylltiad â byd natur? Roedd sylwadau Stephen Bristow ynghylch diffygion addysg amgylcheddol go iawn yn achosi pryder. Ar un adeg, roedden ni'n dysgu am yr amgylchedd trwy adeiladu llefydd i guddio, a thrwy ddringo coed i chwilio am wyau adar.

Rhan o'r broblem yw'r cysylltiadau rhwng bwyd, ffermio a'r amgylchedd. Os yw pris y bwyd yn y siop yn isel, y tebygrwydd yw fod y gost i'r amgylchedd yn uchel. Ar y llaw arall, mae prynu bwyd organig lleol o gynhyrchwyr sydd wedi'u hymrwymo i'r amgylchedd yn siŵr o fanteisio'r amgylchedd. Yn y gyfrol yma, mae Glenda Thomas yn disgrifio'r ffordd y mae dewis y cwsmer yn gorfodi ffermwyr i newid. Hefyd mae Richard Pitts yn adrodd ar fentrau bwyd lleol ym Mhowys.

Ddwy flynedd yn ôl, roedd yn ymddangos bod argyfwng clwy'r traed a'r genau'n bygwth y diwydiant ffermio am byth. Fe elwodd rhai llecynnau o dir uchel o'r gostyngiad yn niferoedd y defaid y mae arian cymorth yn eu hannog. Fe fu cryn drafod ar weledigaeth newydd i'r diwydiant ffermio gan arwain at gyhoeddi *Ffermio i'r Dyfodol*. Dydi'r addewid ddim wedi cael ei chyflawni, ac mae sŵn brefu cyson i'w glywed eto ar ein bryniau. Erbyn hyn, mae'r straeon arswyd am fryniau'n cael eu gorchuddio â phrysgwydd a gwastraff yn mynd i edrych yn debyg iawn i apêl gan y rheini oedd yn crefu am arian ychwanegol.

Ond erbyn hyn, mae mwy o ffermwyr yn mentro ar eu liwt eu hunain ac yn newid y ffordd y maen nhw'n ffermio. Mae'r adroddiadau calonogol am weithgareddau grŵp o ffermwyr Trefaldwyn yn ategu hynny. Mae yna awydd cryf i wneud ffermio a chymunedau gwledig yn fwy cynaliadwy, a dyna'r lle pwysicaf i'r awydd yma fod.

Ers dwy flynedd bellach, mae *Natur Cymru* wedi'i sefydlu'i hun fel llais annibynnol ym mywyd y genedl. Mae'n archwilio'r holl elfennau sy'n cysylltu byd natur â'n bywydau ni. Diolch i'ch cefnogaeth chi, rydyn ni bellach yn cael ein cyhoeddi bob chwarter. Rydyn ni wedi ailddrefnu'r ffordd rydyn ni'n gweithredu, ac mae'r gwaith tanysgrifio'n cael ei wneud yma yn swyddfa'r golygydd. Diolch o galon i Ymddiriedolaeth Bywyd Gwyllt Sir Faesyfed am ofalu am y gwaith tanysgrifio yn ystod y ddwy flynedd brysur gyntaf.

James Robertson

Ffoto: Andrea Bristow.

Dysgu'r to ifanc.

Editorial

At this time of year my diary entries often involve insects: the first ringlets, freshly minted in long grass; the fall of painted ladies sunning themselves on the terrace; or the beautiful demoiselle sitting on a sprig of hawthorn inches away, and then flitting off, circling and landing again on a bramble leaf in the sun. They remind me of those moments of pure pleasure, when I am startled out of myself by the vitality and beauty of the natural world, and the noise of human affairs is briefly stilled.

The desire for contact with the natural world is a gift, part learnt and part inherited, and for me, its absence would mean living in monochrome. Is it being passed on, in this age of information overload, or is a whole generation losing touch with nature? Stephen Bristow's thoughtful look at the passing of real environmental education, once learnt by building dens and climbing trees in pursuit of birds' eggs, gives cause for concern.

Much of this issue is taken up with the connections between food, farming and the environment. When the price at the checkout is low, the environmental cost is likely to be high. On the other hand, buying local organic food from environmentally committed producers should pay an environmental dividend. In this issue, Glenda Thomas describes how consumer choice is driving change down on the farm; and Richard Pitts reports on local food initiatives in Powys.

Two years ago, the foot and mouth crisis looked set to change farming forever. Some upland areas had a respite from the high levels of sheep which subsidies encourage, and there was much talk of a new vision for farming, leading to the publication of *Farming for the Future*. The promise is yet to be fulfilled, and our hills are alive with the sound of bleating. Those scare stories about the hills being abandoned to scrub and waste now look like the special pleading of vested interests looking for payouts.

Our food affects our environment. Photo: Barry Hamilton.

But increasingly, farmers themselves are taking the initiative and changing the way they farm; as the heartening accounts of the activities of a group of Montgomery farmers show, there is a spirit of genuine concern abroad, where it matters most, to make farming, and rural communities, more sustainable.

Over the last two years *Natur Cymru* has established an independent voice in Welsh life, exploring some of the many strands which connect nature to our lives. Thanks to your support we are now a quarterly publication, and we have streamlined our operation by taking over the subscription side here at the editorial office. My grateful thanks to Radnorshire Wildlife Trust for looking after the subscriptions for us during our first two hectic years.

James Robertson

Trees make air

Photo: Andrea Bristow.

Learning about nature.

What has happened to the knowledge about trees, wildlife and the good things which nature can provide, which children once absorbed through their mothers' milk? ***Stephen Bristow*** *reflects on the implications of our modern lives, disconnected from nature, and how, even on the farm, children have little to feed their appetite for practical knowledge about natural materials and the ways of the countryside.*

It was just a short ash stick

I cut it from a young tree a few years ago as I wanted to have a stick for my walks through the woods with school groups. The coppiced tree re-grew strongly, and I used my stick to point out things of interest, to bar the path to excited youngsters trying to rush ahead of me, to search for minibeasts and as an aid to discussions about tree management. But more about the stick later.

Fifty or more years ago, education to a farmer's son (less so to a daughter) meant learning the three Rs and becoming literate and numerate by the time he or she was a teenager. Education was an enabling process to allow the child to go beyond the traditional rural occupations and to follow a career path that might lead to better financial rewards and a higher standard of living. Education received at home on the farm or in the village was just that – homely. It covered such mundane and practical things as the names of trees and plants that were useful, how to grow and find food, how to raise livestock and process livestock products, how to make useful artefacts from the materials that could be found in the area, how to look after the family, and how to enjoy the limited cultural and recreational opportunities.

As a child in the 1950s I remember learning at home how to preserve eggs in waterglass, how to salt runner beans for the winter, how to split open beech mast for an autumn treat, and how to identify all the common wildflowers in the meadows and hedgerows. If I had been asked about trees and tree planting I would have answered that trees were planted to provide timber and products for our use, and to improve the landscape.

What does the 21st century child know of such things?

At GreenWood Forest Park we receive around 10,000 children on school visits each year, and many of the schools request guided tours through the woodland. One of the questions I always ask the children is: "Why do you think we plant trees here?" By far the commonest answer is that "trees make

air and that if we did not plant trees we would not have enough oxygen". Just why is this such a common answer? Of course trees do make oxygen, but then so does every blade of grass, every weed, every bit of moss and fern. Although trees cover about 12% of Wales' land area, I suspect that grass covers far more, and if all the photosynthetic plant surfaces were added together I think that the contribution of trees to oxygen production in Wales would be relatively small. Yet to primary school children in England and Wales, it appears that oxygen production is the primary reason for planting trees.

I believe that the reasons for this unexpected prioritisation are twofold:

- The very fact that we need a subject called environmental education implies that there is often very little going on at home. The fundamental need to know and understand about food collection and preservation has disappeared; the need to know how to make and maintain tools and artefacts has become redundant; and the interest in identifying various plants, birds and animals, and in understanding their behaviour, has diminished, as the far more exciting activities of computer games and the internet have arisen to take their place. Knowledge that used to be handed down automatically from generation to generation as a necessity of life has withered and dried up. First, the parents find that the knowledge they gained from the grandparents has become redundant; then the children have nothing to hand down to their offspring. Two generations are all that it takes for an oral tradition to be lost. Of course, there is far more to environmental education than learning about plant names and the uses of timber, but a basic understanding of these and similar topics will provide a solid context in which to place issues such as natural resource management on a global scale.

As ash stick points out some forest facts. Photo: Ian Hunter-Franks.

- Primary school teachers have a huge workload and are expected to be experts in a wide range of subjects. It is unreasonable to expect them to be aware of all the complexities of the environmental debate. If they teach children that it is bad to cut down trees because trees make oxygen, surely that can't be wrong? And of course it isn't wrong *per* se, but it is only a small fragment of the whole story. The argument that the curriculum dictates everything is very relevant, but there is still a lot of scope at primary level to interpret environmental issues in creative and thought-provoking ways.

Time and again children tell me that we should never cut down trees. After explaining about the oxygen that trees make, they give other reasons for not cutting them down, demonstrating that they have been listening well in class – trees make homes for wildlife, for example. But then I show them my walking stick and we go on to list all the items made from wood in their school. The list grows and grows, and of course they soon realise that we need to cut down very large numbers of trees – in fact around two trees for each person in Britain, or 100 million trees, each year. What they need to know is that this should be, and often is, a dynamic, sustainable process that can provide renewable resources forever, if the trees are managed in the right way.

The ash walking stick, for example, comes from a coppiced ash stool that, if left to grow into a tree, would live until it was about 200 years old and would then die of old age. If, however, it was coppiced every 10-15 years, the tree would not only produce a crop of valuable ash poles every few years but could live until it was 400-500 years old. Cutting it down regularly could make it live more than twice as long as it otherwise might. Children are amazed to find that some trees grow better if you cut them down, but they are quick to realise that other types of tree just die after cutting, and therefore must be replanted.

They are even quicker to understand that if you always plant five trees for each one you cut, then the end result is a lot more trees than you started with. Couple this sort of practical discussion with the complementary view of the need for conservation and habitat protection, and a balanced view begins to emerge. Bring in the need to find compromises between conflicting interests, such as our desire to protect GreenWood's brown hare population while at the same time trying to grow oak and Scots pine

(which the hares love to bite through), and the children are starting to gain an insight into the real world of environmental management.

The ash walking stick fascinates the children – boys and girls alike. They want to hold it, to touch the polished grip where it was originally cut, to feel the smooth bark. They ask why I have a stick – aren't sticks just for old people who can't walk without one? They all want to try it out (I often have great difficulty getting it back again) and then start picking up their own sticks from the woods as we walk round. The old country ways, the use of raw materials, the simple basics of interacting with nature, are all full of wonder for children. In the past, farm children in Wales would have been exposed to so much of what we now call 'environmental education' from a very early age. They would have learned from grandparents and parents, from older siblings and from cousins, and such knowledge would have been commonplace. Now they consume fast food and the idea of eating anything from the wild is often repugnant.

Woodcrafts in action. Photo: Andrea Bristow.

The environmental information to which they *are* exposed is often hyped up so that they are de-sensitised to real issues. The constant stories in the media of environmental disaster mean that they now take few of them seriously, and the internet, while indubitably a very rich source of information, somehow distances children from the real world around them. The population of Wales is intimately linked to farming, but fewer and fewer children go into the profession. More than 50% of the population is urbanised and that proportion is increasing. Thus less and less traditional and authentic environmental education takes place in the home.

The real problems are the polarisation that separates people from the natural world around them – the fear that anything that doesn't come in a fast food package can't be safe to eat; the feeling that nature is something that you look at from a distance but don't participate in; and the failure to grasp the fundamental idea that we are products of our environment and that we have been formed by it and can, and should, interact with it. Until our children understand these basic concepts they will continue to say that we plant trees to make air, and that sticks just help the old to walk.

Stephen Bristow is co-founder and Managing Director of GreenWood Forest Park and has pioneered sustainable forest practices, particularly in Africa.

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Addysg naturiol

Yn blentyn yn y 50au dysgodd Stephen Bristow'n naturiol am fywyd gwyllt a sut i ddefnyddio cynnyrch byd natur – a hynny'n gosod cyd-destun cadarn i ystyried materion fel rheoli adnoddau naturiol byd-eang. Iddo ef, pwrpas plannu coed oedd cynhyrchu pren a gwella tirwedd. Mae plant heddiw yn meddwl mai pwrpas coed yw creu ocsigen – arwydd fod addysg ffurfiol gwersi amgylchedd wedi disodli'r wybodaeth naturiol oedd yn cael ei throsglwyddo o genhedlaeth i genhedlaeth. Mae plant yn synnu wrth sylweddoli fod ambell goeden yn tyfu'n well ac yn byw'n hwy o'i thorri. Mae angen dangos, meddai, fod modd cynaeafu coed mewn ffordd ddeinamig ac adfywiol. Y broblem wirioneddol yw fod pobl yn cael eu gwahanu oddi wrth y byd naturiol o'u cwmpas. Y syniad sylfaenol sydd angen ei drosglwyddo yw ein bod yn gynnyrch ein hamgylchedd ac y dylen ni ryngweithio ag ef.

In their element – coastal otters in north Wales

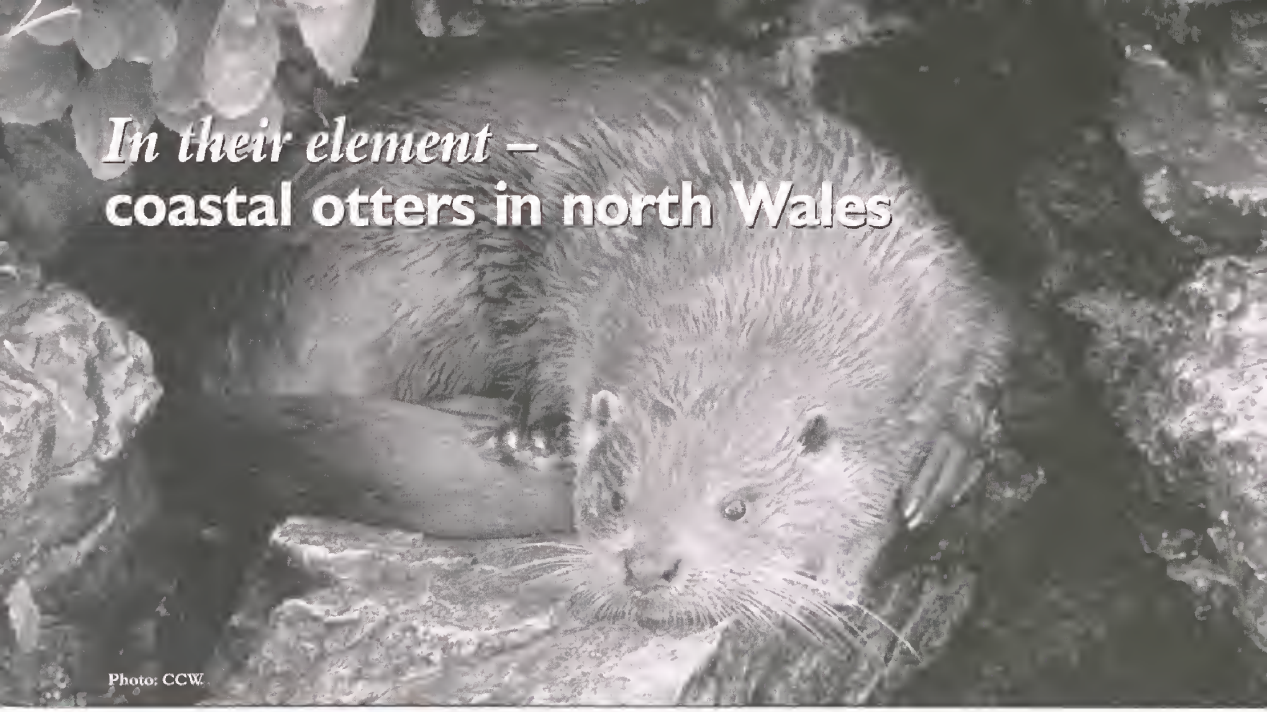


Photo: CCW

After a period of rapid decline, otters are making a comeback. A group of dedicated otter-watchers have been charting their progress, and finding that marine fish feature on the otters' menu. As ***Chris Hall*** *and* ***Kate Williamson*** *report, otters are not averse to a spot of sea fishing.*

A twilight encounter

The estuary of the Afon Dwyryd is a very atmospheric place at the best of times. At dusk it can feel positively haunted, particularly when you are on your own, looking across its wide, eerie emptiness as darkness falls. The mournful hoot of a tawny owl could be all it would take to send you scurrying to the comfort and companionship of the nearest pub.

But it was another nocturnal bird, the nightjar, that I was actually looking, or rather listening for, when my attention was distracted by loud, frenzied splashing. Looking down from my vantage point I could see that the commotion was caused by a small shoal of mullet trapped in a deep pool left behind by the outgoing tide.

The reason for their panic was not immediately obvious but only seconds later it was revealed as an otter surfaced for air. As I watched, it emerged from the water and bounded rather clumsily around the pool, occasionally stopping to peer into the water. It was so obviously just playing and appeared to gain some enjoyment from the discomfort of the fish as they fled to the opposite end of their unnaturally confining environment.

After a few minutes it silently slipped back into the water where it was once again transformed into a streamlined predator. Unfortunately by now it was getting too dark to see what was happening but the continued splashing revealed that the game was not yet over. Otters had returned to the Dwyryd.

The fall and rise of the otter

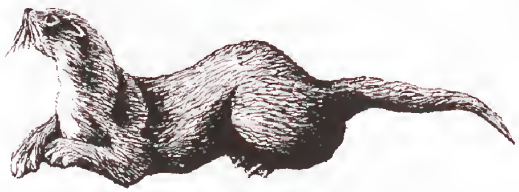
Otters were once common throughout most of the UK, including Wales, until the 1950s and 60s when they became, along with several other species such as the peregrine falcon, victims of agricultural pesticides entering the food chain.

This was also a time of changing farming practices which destroyed a lot of the valuable riverside habitat that otters depended upon. In some cases the offending chemicals were used in seed dressings but in Wales they originated mainly in sheep dips. The outcome, however, was identical and caused the rapid extinction of the otter throughout most of its former range.

Otters were also hunted for sport at this time although, to be fair, it was the hunters who first rang the alarm bells when the number of otters crashed dramatically. Legislation very quickly banned the pesticides and the hunting of the few remaining animals was also outlawed. Dedicated conservationists then set about restoring the population before it disappeared altogether. This was obviously going to be a long, slow process as female otters, known as bitches, usually only give birth to between one and three cubs and infant mortality can be high. She probably won't breed until she is two years old and only has a life expectancy of about three years before she is likely to meet death on the increasingly busy roads. With the population at such a low ebb, her chances of finding a mate are also rather slim.

A helping hand

Assistance was needed to kick-start the recovery process and in these early days a captive-release programme proved to be the answer, establishing strong breeding populations in key areas. This was achieved by breeding otters in captivity and releasing them into areas judged to be suitable for them to thrive and breed successfully. This strategy was in fact so successful that otters eventually reached a point where they no longer needed a helping hand and the captive-release programmes were suspended, leaving the animals to naturally re-colonise their former ranges. North Wales was quite a long way from any of the reintroduction sites so the recovery was a slow process. It is also likely that in some remote areas, as in the case of the red kite and the polecat, a remnant population survived. In a national survey conducted by the Vincent Wildlife Trust in 1991, the catchment of the Afon Dwyryd was still largely devoid of otters.



Bouncing back

In 1997 I was conducting a monitoring programme of the water voles on drainage ditches on the Dwyryd flood plain, as they had become a cause for serious conservation concern. Water voles seem to be one of those unfortunate creatures that appear to exist solely as a prey item for other more predatory species. It was while looking at the potential predators of the voles that I started finding increasing signs of otter occupation. The otter population was definitely bouncing back from the brink.

The Afon Dwyryd Otter Partnership

In July 2000 we founded the Afon Dwyryd Otter Partnership to monitor this rapidly recovering otter population in the Dwyryd catchment. The strategic position of this catchment was thought to be important to the re-colonisation of the Llŷn peninsula from the longer established otter populations in the river systems to the south.

We therefore deemed it necessary to establish a breeding population on the Dwyryd from which surplus animals could disperse into adjacent vacant territories. To further this aim we installed artificial holts (which were very quickly occupied), as a lack of natural sites was possibly inhibiting successful breeding.

A team of volunteers also collected spraints (otter droppings) on a monthly basis for analysis from 23 monitoring sites which covered the whole range of habitats in the catchment from Portmeirion on the estuary to lakes high in the uplands. This analysis was obviously important as many prey species, such as amphibians and migratory salmonids, are seasonal in their availability in this area. Any significant gaps in this prey availability could well cause serious problems for a resident, breeding population.
The results of this analysis luckily revealed that these fears were largely unfounded as a surprising number of coarse fish which are available throughout the year were present, with perch, pike and rudd playing an important role along with the expected frogs, eels and salmonids. The only worrying prey item, in fact, was the water vole, which was caught with alarming regularity considering its rapid decline in the locality. These animals often appeared in spraints close to known vole populations.

The biggest surprise, however, came from the presence of marine fish species, mainly dabs, in the spraints some 15km from the sea. This occurred often enough for us to suspect that the otter concerned was making the journey specifically to hunt in the estuary, rather than simply making opportunistic catches while indulging in its routine territorial behaviour. The otter uses spraints to mark out its territory to inform other otters that the territory is occupied.
It is this territorial behaviour, or rather the difference in territorial behaviour between the sexes, which offers some possible explanation as to why some prey species were deposited in spraints close to the point of capture, whereas others ended up miles away. All otters are fairly nomadic within their territories, which are fiercely defended to the point where serious injury can result from conflict over border disputes. Bitch otters, however, have considerably smaller territories than the dogs. A breeding bitch will wander even less as she will be reluctant to stray too far from her cubs, and will also, if she is to breed successfully, select and defend a territory with suitably abundant food sources to remove the need to forage too far afield.

Otters can be great travellers. Photo: Chris Hall.

Dog otters occupy much larger territories, often encompassing the ranges of two or three bitches. This will be patrolled regularly to ensure that no other dogs mate with his bitches and, as a result, prey species which can take up to three days to pass through his digestive system can end up a considerable distance from their point of capture. The pattern of distribution of the spraints led us to believe that we probably had two resident bitches and one dog within the catchment of the river system.

One of the other functions of the Partnership was the collection and cold storage of road casualties. Throughout 2001 and 2002 these casualties were occurring further and further down the Llŷn peninsula with a large dog otter eventually being killed just outside Aberdaron, close to the western tip of the peninsula.

Around this time CCW had been carrying out an inter-tidal habitat survey in preparation for the designation of a marine Special Area of Conservation. These surveys revealed some extensive kelp forests on the Llŷn coast which is one of the favoured foraging habitats of otters in coastal Scotland as it draws prey species close enough inshore for them to be realistic targets.

The combination of the above factors led us to suspect that coastal Llŷn was already being colonised. As just 1km of productive coastline can support an otter compared with tens of kilometres of river, the Llŷn peninsula obviously had great potential for supporting a considerable population. Also, as you approach the western-most tip the rivers become progressively shorter, which would suggest that a resident otter would have little choice but to attempt to exploit the marine environment.

So with funding from the Peoples Trust for Endangered Species we decided to survey selected areas of the Llŷn coast to gather baseline data as early as possible in the re-colonisation process.

Site selection

So that comparative data on diet could be gathered, we decided to survey five sites with kelp and five without. We selected sites on coasts adjacent to road casualties, locations of sightings and, in one case, a known breeding site so that reliance or utilisation of marine prey in a seemingly productive river system could be established. The presence of fresh water on the site was also one of the selection criteria due to the well-documented need for otters to have fresh water to drink and to wash salt from their coat to preserve its insulation.

We also distributed 2000 cards appealing for coastal sightings prior to the surveys to attempt to gauge the current extent of the re-colonisation process.

Methodology

Following consultations with people experienced in the habits of coastal otters, we decided to survey 1km coastal squares. This was because sprainting often takes place on the freshwater bodies leading to the coast and that spraints can be difficult to find on the coast itself as well as being sometimes deposited on sites in the intertidal zone from where they soon get washed away. All spraints from the squares were collected and later analysed by Swansea University. Relevant habitat and holting opportunities were

also mapped along with possible sources of freshwater prey species. Possible threats on the site to an expanding otter population were also identified, crustacean traps within 200m of the shore being a prime example. Drowning in lobster pots is known to be a common cause of mortality in some coastal areas of Scotland.

As tourism is an important part of the local economy, any signs of this conflicting with the needs of the otter population were also noted. It is hoped that future projects can integrate the needs of otters with sensitive eco-tourism.

Fish make up most of the otter's diet. Photo: Kate Williamson.

Results

Out of the ten 1km squares surveyed, 8 were found to have positive signs of otters and spraints were collected from these sites.

The only two negative sites were ones where the fresh water on the site, while adequate for drinking and the desalination of coats, did not also provide foraging opportunities, so that the only prey available was of marine origin. This is some indication of the current low level of population, as territorial pressure would soon cause these sites to be occupied. Currently the prime territories are those with a diversity of both prey species and foraging opportunities. If the sea is extremely rough it is obviously advantageous to have freshwater foraging areas within your territory to fall back on.

Spraint analysis revealed that fish made up 95.7% of the otters' diet on the Llŷn with mammals and birds at just 2.13% each. The mammal contribution was once again the unfortunate water vole.

Of the fish species, the eel was by far the most common prey item contributing nearly 32% of the otters' diet. The otters' liking for eels is well known and the species also has the advantage of being available in both freshwater and marine environments as well as being relatively easy to catch and, like the otter, a tendency to be nocturnal. Eels also utilize a wide range of freshwater habitats and are often the only fish species to be found in ditches. Work on the Dwyryd has revealed that otters use a similar range of habitats, with ditches being nearly as popular as the rivers.

Salmonids were the next most popular prey item, making up 17.2 % of the diet.

The most interesting discovery in the analysis was the significant presence of the sea stickleback *Spinachia spinachia*, which constituted nearly 15% of the otters' diet. Being a solitary, territorial fish as well as being small, this species would not normally be expected to be caught in such quantities. Prey species tend to be targeted when they have a high enough biomass to make hunting them efficient. Purely by chance, the surveys took place just after the spawning period when sea sticklebacks gather in large numbers in the kelp forests.

The only other prey species found in any great numbers was the three-spined stickleback, which made up just under 13% of the otter's diet. This again illustrates that otters are quite capable of targeting small prey items provided that they occur in sufficient numbers to be worthwhile hunting.

Some other marine prey species were recorded but they were only minor components of the diet. These included bullhead, plaice, non-rockling gadoid, viviparous blenny and yarrels blenny.

Conclusion

While it would be easy to conclude that the otters carry out most of their foraging in fresh water due to the apparent reliance on eels and salmonids, it must be remembered that these species are also present in the sea. The surveys were carried out during exceptionally dry weather, a condition that causes many migratory fish species to wait in the mouths of rivers for sufficient water to enable them to travel upstream. The fact that the two negative sites had only marine foraging opportunities does however suggest that the otters find foraging easier in the freshwater environment.

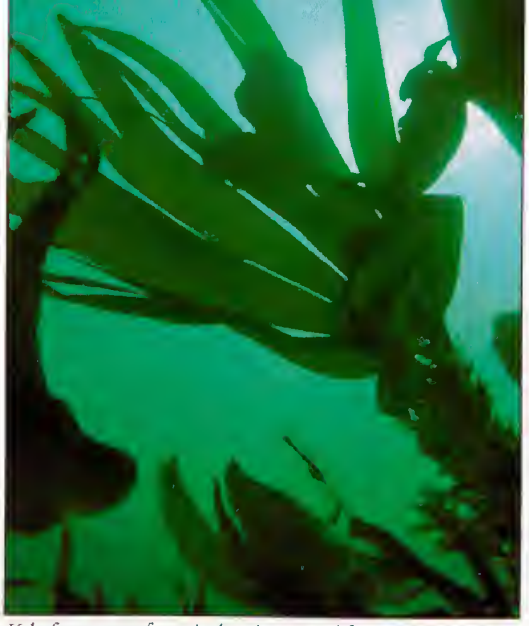


Photo: Rohan Holt.

Kelp forests are a favourite hunting ground for otters.

Whether the kelp forests affect the animals' use of the marine environment has yet to be established. This one 'snapshot' taken in September has revealed that the otters do forage in the kelp but this use may vary throughout the year and other marine habitats may yet turn out to be equally important. Muddy estuaries, for example, are teeming with flatfish and crustaceans at certain times of the year.

While some territories are unoccupied the otters obviously have a wide choice of hunting opportunities. If the population continues to increase, however, this freedom of choice will be removed as dominant animals claim the prime sites leaving the others to attempt to survive in sub-optimal habitats. This is when the value of the kelp forests and other marine habitats will really be put to the test as animals become wholly reliant on their resources throughout the year.

What is abundantly clear is that a considerable amount of research still needs to be carried out, and with this in mind a series of surveys of the coast of the Snowdonia National Park are planned for May 2003. These surveys will give us information on the otters' use of a totally different range of habitats from those surveyed on the Llŷn peninsula.

Chris Hall is the founder of the Afon Dwyryd Otter Partnership and works in mammal conservation on a voluntary basis.
Kate Williamson is the Biodiversity Co-ordinator for the Snowdonia National Park with a particular interest in mammals.

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The survey team.
Sarah Jones for arranging access permission.
The staff of Plas Tan-y-Bwlch for their usual high standard of hospitality.

Dyfrgwn yn ôl yn y môr

Mae arolygon yn dechrau ym mis Mai i ddarganfod faint o ddyfrgwn sydd bellach yn treulio amser yn y môr ger glannau Parc Cenedlaethol Eryri. Mewn arolwg cychwynnol o ddeg ardal o 1km sgwâr ar lannau Llŷn gwelwyd olion dyfrgwn mewn wyth ohonyn nhw – lle'r oedd dŵr hallt a dŵr croyw ar gael ar gyfer hela. Pysgod oedd 95.7% o fwyd y dyfrgwn yn yr ardaloedd hyn ac, er bod y rhan fwya'n rhywogaethau dŵr croyw, rhywogaeth forol o grothell oedd 15% o'r deiet a'r pysgod hynny yn casglu ar y pryd yn y coedwigoedd gwymon eang sydd wedi eu canfod yn Llŷn. Partneriaeth Ddyfrgwn Afon Dwyryd oedd yn gyfrifol am y gwaith – cafodd ei ffurfio i gadw llygad ar gynnydd dyfrgwn yn y cylch, yn arbennig o ran ailsefydlu yn Llŷn. Roedden nhw wedi sylwi fod olion pysgod môr ym mwyd rhai o'r creaduriaid ar yr afon ac, ar yr un pryd, fod cyrff dyfrgwn yn cael eu darganfod ar ffyrdd ymhellach ac ymhellach i orllewin y penrhyn. Fe fydd yr arolwg newydd yn archwilio nifer o safleoedd cwbl wahanol ar lannau'r Parc.

Llên y llysiau

Ffoto: Rolant Williams.

Yn astudio llosgfan diwydiant rhedyn Porth Gwichiaid.

Cipolwg ar ysgrif gan ***Rolant Williams*** *mewn papur bro sydd yma'r tro hwn, a blas o'r adwaith a dderbynnir gan y darllenydd i un neu ddwy o'r erthyglau a dan y teitl hwn.*

Ffoto: Ray Woods.

Rhedyn ac adwaith

Roedd yn braf dod ar draws erthygl ddifyr gan Rolant Williams yn *Yr Arwydd*, papur bro gogledd-ddwyrain Môn, sydd yn yr un cywair â'r hyn a gyhoeddir yn *Natur Cymru* o dan y teitl Llên y llysiau. Sôn y mae Rolant Williams am ddisgrifiad manwl yn llyfr Hugh Owen, *The Life and Works of Lewis Morris 1701-1765*, o'r diwydiant lludw rhedyn (*Pteridium aquilinum*) ym Môn. Llosgid rhedyn mewn sawl man ar hyd yr arfordir yng nghyffiniau Dulas ac ardaloedd cyfagos. Pwrpas y llosgi oedd creu lludw potash ar gyfer diwydiannau megis y rhai gwneud sebon a gwydr. Allforid y lludw o borthladd Dulas, porthladd prysur yn yr oes honno yr oedd sawl math o gargo yn mynd drwyddo'n rheoliadd gan gynnwys ymenyn, ceirch, penwaig, glo a chalch.

Mae'n amlwg fod tyfiant da o redyn ar hyd y glannau yn yr ardal hon yn y ddeunawfed ganrif. Roedd y llosgfannau rhedyn, neu'r aelwydydd, i gyd ychydig lathenni yn unig uwchben y traeth. Hwylus felly oedd cludo'r lludw, wedi gorffen ei drin, mewn cychod rhwyfo i borthladd Dulas ar gyfer ei allforio. Fel arfer, roedd tri gweithiwr i bob llosgfan.

Nodir na ddylid torri'r rhedyn yn yr un fan am fwy na thair blynedd yn olynol rhag gwanhau'r tyfiant. Wedi'r llosgi byddid yn glanhau a mesur y lludw'n ofalus gan sicrhau ei fod o'r ansawdd gorau ar gyfer ei werthu. Fesul pecaid y mesurid y lludw, gan osgoi unrhyw wasgu neu ysgwyd rhag iddo setlo. Po ysgfaned y lludw, po fwyaf yr elw a ddeilliai o'r gwerthu!

Hel atgfion o ddyddiau ieuenctid y mae Rolant Williams yn hanner olaf ei erthygl a chawn ddarlun o'r modd y byddent yn blant yn hel broc môr (drec môr yn iaith Môn) ar ôl gwynt o'r gogledd-ddwyrain ym Mhorth y Gwichiaid. Os byddai gormod o froc i'w gario adref, yna fe'i rhoid mewn cuddfan naturiol o gerrig ar ffurf crochan mawr a honno wedi ei chuddio dan dyfiant trwchus. Heb yn wybod iddynt ar y pryd, defnyddient guddfan oedd mae'n debyg yn weddillion un o'r llosgfannau rhedyn o'r hen amser. Roedd yn debyg iawn i'r disgrifiad ohonynt yn llyfr Hugh Owen. Ac wedi gweld, mae mwy o weddillion y safleoedd hyn ar dir y Penrhyn gerllaw er nad oes cymaint o'r gwaith cerrig ar ôl.

Mae'n braf gweld papurau bro yn croniclo gwybodaeth am yr hen ddefnydd o'n planhigion brodorol. Trwy gyhoeddi fel hyn y ceir adwaith gan eraill, a mwy o wybodaeth. Rhan o'r bwriad o gyhoeddi erthyglau Llên y Llysiau yw cael ymateb fydd yn ychwanegu at hanes ein cysylltiadau â'r llysiau. Mae sawl llythyr wedi ei dderbyn ers inni gychwyn y gyfres a da fyddai derbyn llawer mwy gan ein darllenwyr. Yn ddiweddar cafwyd ymateb da i'r erthygl ar y fasarnen – un yn cyfeiro at erthygl ar y goeden hon mewn papur bro arall, yng ngogledd Maldwyn y tro hwn. Yno hefyd nodwyd na chanfuwyd enwau lleoedd yn gysylltiedig â'r fasarnen. Mae cofnod yn llyfrau festri Plwyf Llangadfan yn 1773 yn disgrifio fel y cludwyd planhigion coed masarn o blasdy Melin y Grug i fynwent yr eglwys, a'u hail blannu yno hefo railings o'u cwmpas. Awgrymir bod hyn yn dweud fod gwerth i'r fasarnen yn y cyfnod hwnnw a'u bod yn brin yn yr ardal. Ehangwyd y fynwent tua chan mlynedd yn ôl ac mae'r masarn a gludwyd yno i'w gweld o hyd, ond yng nghanol y fynwent erbyn hyn.

Nid yn y Gymraeg yn unig y ceir ymatebion. Daeth un, ar y fasarnen eto, mewn ymateb i'r crynodeb Saesneg ar ddiwedd yr erthygl. Y gair mazer y mae Duncan Brown yn ei drafod yn ei erthygl sydd dan sylw. Nodir gan y darllennydd fod Richard Mabey, yn *Flora Britannica*, yn dweud mai enw am lestr i yfed ohono yw mazer, wedi ei wneud o bren masarnen y maes (*Acer campestre*). Dywed y llythyrwr hefyd fod gan bren masarnen y maes raen clos iawn sydd yn arbennig o addas ar gyfer ei gerfio ac fe'i defnyddid yn y gorffennol i wneud telynau.

Parhaed yr adwaith! Anfonwch eich ymatebion at Duncan Brown **dn.brown@ccw.gov.uk**, neu ffôn 01286 650547. (Bydd manylion cysylltu ar ddiwedd pob erthygl yn y gyfres.)

The lore of plants

Bracken and reader response!

This article highlights other published accounts which take us back into the history and use of plants, bracken in particular. It refers to a piece in a local Welsh paper 'Yr Arwydd', on the historic uses of bracken, *Pteridium aquilinium*, in north-east Anglesey. It was used extensively in the 18th century as a source of potash for use in the maufacture of soap and glass. The potash was obtained by burning the bracken in seaside kilns. The author describes the remains of some of these kilns and how he used them during his childhood for storing driftwood.

Publication of such historical information promotes responses, bringing in more information. A steady trickle of responses to Llên y llysiau is being received by Duncan Brown and he would be grateful for even more (contact details at the end of each article). Recent responses to the article on the derivation of the Welsh names for the sycamore tree included a reference to saplings which had been transplanted into a cemetry in north Powys in the 18th Century – which suggests that this tree had scarcity value in those days.

Another reader refered to the discussion of the word 'mazer' by the author and points to another meaning – a drinking vessel made from the wood of the field maple. He says that this tree was valued by carvers and used in the manufacture of harps.

Food shopping *with the environment in mind*

All photos: FWAG Cymru.

Cattle grazing on saltmarsh.

As consumers, we are just beginning to make the connection between the food we buy and the environment we want. Better food can mean a better environment. One initiative is doing much to show the practical benefits which flow when the environment is part of the deal which the farmer offers the consumer. In Wales these benefits include a re-activated farming advisory service, as ***Glenda Thomas*** *reports.*

When shopping for food our decisions about what to buy are determined by factors like cost, taste, the product's 'health value', packaging, and animal welfare. Usually low down on the list comes the environment. However, we are now beginning to see concern for the environment in which food is produced steadily climbing the agendas of both the consumer and the businesses involved in the supply chain.

One large supermarket has already had the environment and biodiversity high on its agenda for several years. Sainsbury's, in partnership with the Farming and Wildlife Advisory Group (FWAG), has been actively encouraging its farmer suppliers to support biodiversity. It was one of the first supermarkets to encourage its suppliers to adopt integrated crop management techniques.

During the initial stage of the partnership FWAG was contracted to deliver a limited number of 'Landwise' whole-farm plans, which provide advice on conservation aspects, to suppliers in the fresh produce sector. At first the reports were received with some circumspection by growers, but they are now generally well received. Even the most intensive producers are able to introduce conservation practices into their farming (especially within field margins or non-farmed areas) so that some of their land can be managed specifically to support wildlife.

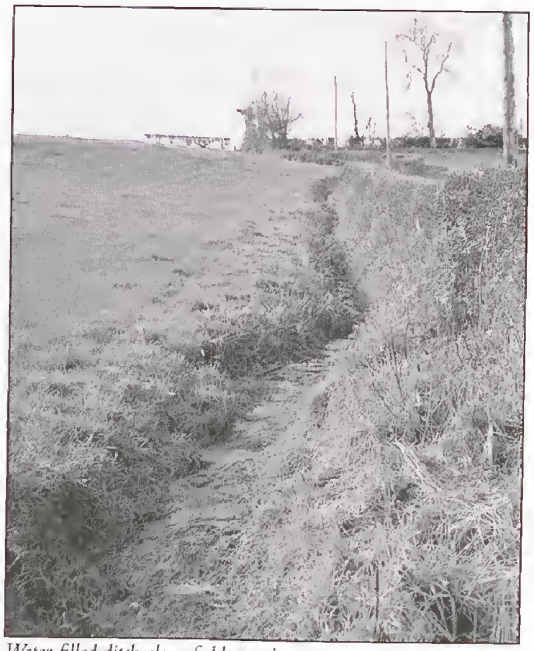
The preliminary work was undertaken in the horticultural sector but, boosted by the success of the venture, Sainsbury's commissioned FWAG to deliver a further 1000 Farm Biodiversity Action Plans to farmers in England and Wales over a five-year period from 2000 to 2005.

Tagged hedge tree.

The initiative embraces all Sainsbury's key farmed livestock species, but the majority of the farmers are supplying beef, through Anglo Beef Processors at Ellesmere, Shropshire, which is then sold as part of Sainsbury's 'Taste the difference' range. During the past 6 months, the newly activated FWAG Cymru service has produced Landwise Farm Biodiversity Action Plans for 150 such farmers, located throughout Wales. These plans form part of whole farm planning which provide guidance to farmers on how they can help a limited number of target species or habitats, alongside commercial production. FWAG has designed the plans to be visually attractive, well illustrated, very practical and easy to implement. Four species or habitats are highlighted in these reports. These vary from farm to farm, but are usually linked to the Local Biodiversity Action Plan for the area within which the farm is located. To date, some 102 animal and 24 plant species have been targeted in the plans, as well as 19 habitats of specific interest.

Although a few of the farms visited in Wales so far are within agri-environment schemes, the vast majority are not, and consequently have very limited access to any environmental grants. The FWAG reports thus concentrate on measures that require minimal capital investment by the farmer (zero budgetary options) but which, if put into practice, have a significant benefit to the wildlife on the farm. Such measures might include less frequent and more wildlife-sensitive hedge trimming; increasing the amount of dead wood left around the farm; creating buffer zones and habitat piles; and planting hedgerow or parkland trees.

For many a farmer the visit by FWAG Cymru's Farm Conservation Advisers has proved a rare opportunity to focus on the environmental aspects of their farm management. Regarding themselves as very commercial and usually stocking quite intensively, the farmers often felt that conservation organisations generally had little interest in what their farms had to offer. The farms, on the whole, consist of agriculturally improved fields, but their field boundaries often provide very valuable habitats, with hedges, earth banks and ditches providing extensive wildlife corridors. Hedges are often dense, with an impressive array of ground flora – in sharp contrast to the gappy, nibbled-out hedges and well-grazed earth banks



Water-filled ditch along field margin.

Double-fenced clawdd.

associated with intensive sheep farming. They also ensure a plentiful supply of a very valuable habitat management 'tool' – the cow!

The farmers have been impressed that commercial organisations such as Anglo Beef Processors and Sainsbury's are showing an interest and investing in their environment. We, as consumers, are beginning to express our interest by selecting products from farms that are managed using environmentally sensitive methods.

Glenda Thomas manages FWAG Cymru. The Farming & Wildlife Group have recently re-activated their service in Wales, with three advisers giving independent, on-farm advice on a range of environmental issues.

Fenced river corridor.

Addysg naturiol

Siopa – gan gofio am ein hamgylchedd

Pan fyddwn yn prynu bwyd, pendronwn dros ambell i beth gan ystyried pris y bwyd, ei flas, lles anifeiliaid, pacediad a pha mor iachus yw'r cynnyrch. Y dyddiau hyn, mae mwy ohonom yn cymryd diddordeb hefyd yn yr amgylchedd lle y cynhyrchwyd ein bwyd. Mae'r un diddordeb yn datblygu ymhlith y cwmniau sydd yn rhan o'r gadwyn cyflenwi bwyd. Mae un o'r cwmniau hyn, sef Sainsbury, wedi bod yn cyd-weithio â FWAG am sawl blwyddyn bellach. Maent yn annog ffermwyr sydd yn cyflenwi cynnyrch iddynt i gymryd camau a all newid cynefinoedd ar y fferm er lles anifeiliaid a planhigion gwyllt.

Dros y chwe mis diwethaf, fel rhan o raglen a weithredir dros y deyrnas i gyd, mae FWAG Cymru wedi ymweld â 150 o ffermwyr sy'n gwerthu gwartheg i Anglo Beef Processors yn Ellesmere, Sir Amwythig. Mae eu cig wedyn yn mynd ymlaen i gael eu werthu fel cig eidion yn archfarchnadoedd Sainsbury. Dosbarthwyd copïau o adroddiadau Landwise – Cynllun Bioamrywiaeth Fferm – ymysg y ffermwyr hyn. Mae pob adroddiad Landwise yn adroddiad ymarferol, eglur a hyblyg yn seiliedig ar fap o fferm benodol. Mae'n darparu gwybodaeth am anghenion cynefinoedd detholedig, ac effaith gweithrediadau'r fferm ynghyd ag argymhellion rheolaeth penodol. Bu'r adroddiadau yn canolbwyntio ar 4 rhywogaeth neu gynefin, sydd yn amrywio o fferm i fferm. Maent fel arfer, fodd bynnag, yn rhai sy'n gysylltiedig â Chynllun Gweithredu Bioamrywiaeth yr ardal.

I lawer o'r ffermwyr, roedd ymweliad un o gynghorwyr FWAG Cymru yn rhoi cyfle prin i drafod rheolaeth amgylcheddol ei fferm. Ar y cyfan, nid oedd y ffermydd hyn yn rhan o unrhyw gynllun amgylcheddol. Felly, roedd angen canolbwyntio ar fesuriadau nad oeddynt yn rhy gostus ond a oeddynt, ar y llaw arall, o fantais sylweddol i fywyd gwyllt y fferm. Yn aml, er bod rhan helaeth o dir y ffermydd wedi ei wella'n amaethyddol, roedd cynefinoedd gwerthfawr i fywyd gwyllt ar hyd terfynau caeau. Ar y ffermydd yma hefyd sicrheir dyfodol y fuwch, anifail sydd mor allweddol mewn unrhyw gynllun rheoli glaswelltiroedd er budd yr amgylchedd.

The mysterious **Welsh sorbs**

Photo: Patrick Roper.

The rare whitebean Sorbus croceocarpa *in fruit.*

The whitebeam, rowan and service trees belong to the genus Sorbus, *of which Wales has its own endemics.* **Patrick Roper** *explores the historical and cultural significance of these wondrous trees, the bearers of cherished fruits, which link us to the world of monks and druids.*

Among the wildlife treasures of Wales some of the most interesting are the trees of the genus *Sorbus*. This includes three main groups, the whitebeams, the services or sorbs, and the rowans. Among the latter the rowan, or mountain ash, is a familiar tree of acid soils and particularly attractive in autumn with its bright red berries. These were, and occasionally still are, fermented in water to make *diod griafol* (rowan drink) which John Evelyn, the 17th century author famous for his writings on trees as well as his diary, said was "an incomparable drink". This it may well have been, but Evelyn was very fond of the word 'incomparable', so caution in regard to the quality of this beverage is advised, though it was undoubtedly alcoholic.

The whitebeam group includes some of the few plants that are endemic to Wales like *Sorbus leyana* and *Sorbus minima*. The common whitebeam, *Sorbus aria*, which is widespread in southern England, occurs in the wild only in Monmouthshire where it occasionally hybridises with the wild service, *S. torminalis* to produce *S x vagensis*, named from the Latin for the river Wye.

Most whitebeams have red berries but there are several species with orange fruit that merge into the service tree group whose fruit are brown. The two principal services in Britain are the wild service, and the true

Photo: Ray Woods.

Mountain ash.

service, *S. domestica*. People often suggest that the English names are inappropriate but they are simply translations of the Latin used by earlier authors: *sorbus sylvestris* and *sorbus legitima*.

The wild service is nowhere very common, though an undoubted native, and it is thinly scattered across Wales in low-lying areas often close to the coast (Roper, 1993). It prefers to grow either in ancient woodlands with rich soil, or on rather bare, rocky cliffs and slopes where it cannot easily be overshadowed by stronger-growing species.

The modern Welsh name for the tree – *cerddinen wyllt* – appears to have been relatively recently coined as a translation of the English, but in Pembrokeshire it is known as the 'maple-cherry' (a reference to its rather maple-like leaves), a term that occurs nowhere else in the British Isles as far as I know.

To the north and west of this, the wild service becomes very scarce indeed, partly because of the upland nature of much of the country, but more examples may well be found as it is easily overlooked.

The story of the true service in Britain is truly remarkable and one that is still unfolding. Generally it is a species that flourishes further south and east in Europe than the British Isles, but one ancient tree of unknown origin grew for many years in the Wyre Forest in Worcestershire. Then, in 1983, Marc Hampton found this species growing on steep sea cliffs in South Glamorgan (Hampton & Kay, 1995). Some of the trees here were shown to be 400 years old so this was clearly not a recent introduction and thus a new, apparently native, tree was added to the British list. Subsequently the tree has been found by the river Severn in Gloucestershire and other sites may well be discovered. The reason why it has been overlooked is that it grows in very inaccessible places and its leaves and flowers, especially from a distance, look very much like those of the rowan. The large, brown fruit are distinctive but inconspicuous and rather seldom produced under British conditions. Research is currently under way on the DNA of these British true services and may well show that they have arisen from several introduced stocks, rather than being truly native.

Photo: Ray Woods.

The wild service.

An ancient circle of trees at Lleiniog. Photo: James Robertson.

Healing powers and golden berries

Another service tree particularly associated with Wales is the orange-berried whitebeam, *Sorbus croceocarpa*. Although this tree has been known in cultivation, as *Sorbus* 'Theophrasta' and similar, since at least the mid-19th century, it was not formally described (i.e. given its scientific name) until 1989 (Sell, 1989). The trees used for this formal description were a distinctive group growing on The Mound at Lleiniog on the island of Anglesey overlooking the Menai Strait. It occurs widely along the Menai Strait and is scattered elsewhere mainly across central and northern England and southern Scotland. Most botanists think the tree is an introduction to Britain but, if so, no one knows its country of origin and there is a possibility that it is a native species.

Most members of the genus *Sorbus* have intriguing economic and social dimensions. The fruit is edible, some are good eaten raw if properly ripe, all can be made into jellies and used in various ways to create alcoholic drinks, and they were sometimes used in medicine in the past. The fruit, leaves and wood have been attributed with a wide range of magical properties from curing mange to warding off witches and there is no doubt that the trees were often regarded with some awe.

It was because of this dimension that I began to wonder if some or all of these trees had had a significant role in the pre-Christian or sub-Christian past. One of the most striking passages written on Roman encounters with the Welsh is when Tacitus describes the crossing of the Menai Strait in the year 61 to destroy a druid stronghold on Anglesey. The Romans had sent troops some considerable distance to mount this attack so the influence of this druidical group must have been considerable. I have read several accounts of where the Romans might have crossed the Menai Strait and one (Ross, 1999) suggests somewhere in the Penmon area, which is close to Lleiniog and the type location of the orange-berried whitebeam.

Having defeated the druids, the Romans destroyed their sacred groves and I could not help wondering if these might have included *S. croceocarpa*. Obviously the trees growing here and elsewhere in the neighbourhood are unlikely to have survived since Roman times, but most sorbs are able to reproduce by suckering and would have regrown after felling. Country people are also inclined to continue to grow special local trees simply because they like them and are familiar with them – think of the English affection for the oak.

Another factor that may be of significance in this speculation is the bright golden-yellow colour of the berries, something unusual in the British fruits. One of the most widespread European myths is that of the Golden Apples of the Sun, and the orange sorbs of Anglesey would fit the concept very well. The earlier name 'Theophrasta' comes from the Greek meaning 'food of the gods' and Sell (1989) has suggested this was because of the large and abundant fruit. There is no evidence for the use of the name 'Theophrasta' before the 19th century, but it shows how easily this tree with its golden berries can be associated with ancient legends. Robert Graves in *The White Goddess* also speculates much on the legendary significance of service trees and their fruit.

In the past the wild service also used to grow wild in Anglesey (and maybe still does). Although it may be native here, it is rather far from its other sites and could well have been introduced, perhaps at an early date. Its old strongholds were also between the Menai Strait and the river Braint, where many of the most important pre-Christian antiquities are found.

Wild services sucker vigorously and I have seen sites where there is an almost perfect circle of young trees at a distance of 10 metres or more from the mother tree. Often the leaves of this species turn a striking crimson in autumn and a natural phenomenon like this would probably have been held in some awe by people who built wooden (and stone) sacred circles (Piggott, 1978).

Photo: Patrick Roper.

Fruit of the rare whitebeam Sorbus croceocarpa.

Sacred groves and druids

The true service in the south of Wales may also have had some early significance. It could have been introduced by the Romans, or brought via trade with Gaul. The fruit is still sold in street markets in Italy and France and I have a fruiting tree in my garden in Sussex grown from a seed of one of these Italian fruits. The Glamorgan sites are, according to Marc Hampton, close to Celtic Christian sites and much in their culture was, of course, taken from the Romans and the pre-Christian local religions.

Perhaps most intriguing of all is a comment attributed to Nennius, the 9th century Welsh monk, who said that apples grew on an ash tree (*poma inveniuntur super fraxinum*) at the mouth of the river Wye. This could be the 'Nemetambala' mentioned much earlier in the Ravenna Cosmography and thought to be a sacred grove. With its ash-like leaves, apple-like fruit and currently emerging distribution, the tree in question may well have been a true service.

Something that lends further substance to my historical speculation (and I would be the first to agree that any druidical link with sorbuses might simply be coincidence and imagination) is the congruence between the endemic Devon whitebeam, *Sorbus devoniensis* and an

area where there appears to have been a good deal of grove-associated druidical activity in Roman times (Chadwick, 1997). The Devon whitebeam, which is similar in appearance to *S. croceocarpa* and with orange or orange-brown fruit, is found mostly in north Devon, with outliers elsewhere in the county, in eastern Cornwall and south-eastern Ireland.

The Romans had a marching station called 'Nemetostatio' near modern North Tawton which, like Nemetambala on the Wye, embodies the early Celtic word *nemeton*, a sacred grove, and various place names in *Sorbus devoniensis* country like King's Nympton and the river Nymet contain the same element.

There are many other possible links between *Sorbus* trees and early Celtic culture and more research needs to be done. However, even though we shall probably never know in detail what, if any, significance they did have I shall enjoy the thought that a tree whose spiritual home, if I can put it that way, is Anglesey could have been the bearer of the Golden Apples of the Sun.

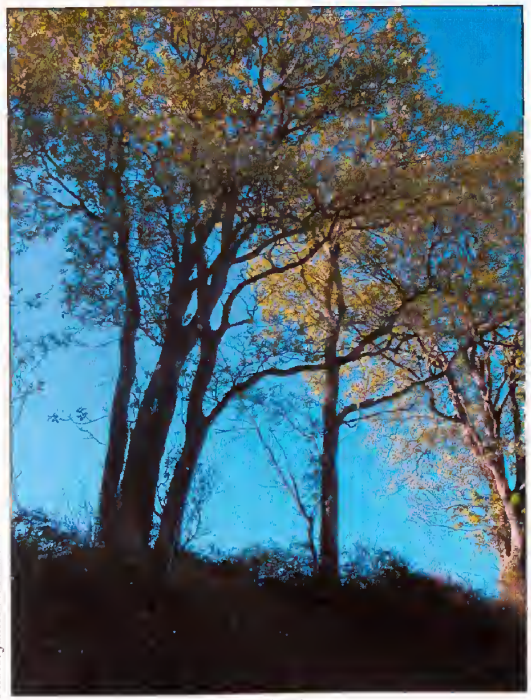


Photo: James Robertson.

Rare whitebeams on the Menai Strait.

Dr. Patrick Roper is a professional ecologist who has been studying the genus Sorbus, and in particular the wild service tree, for over 30 years. He also has a long-standing interest in the early Celtic history of the British Isles.

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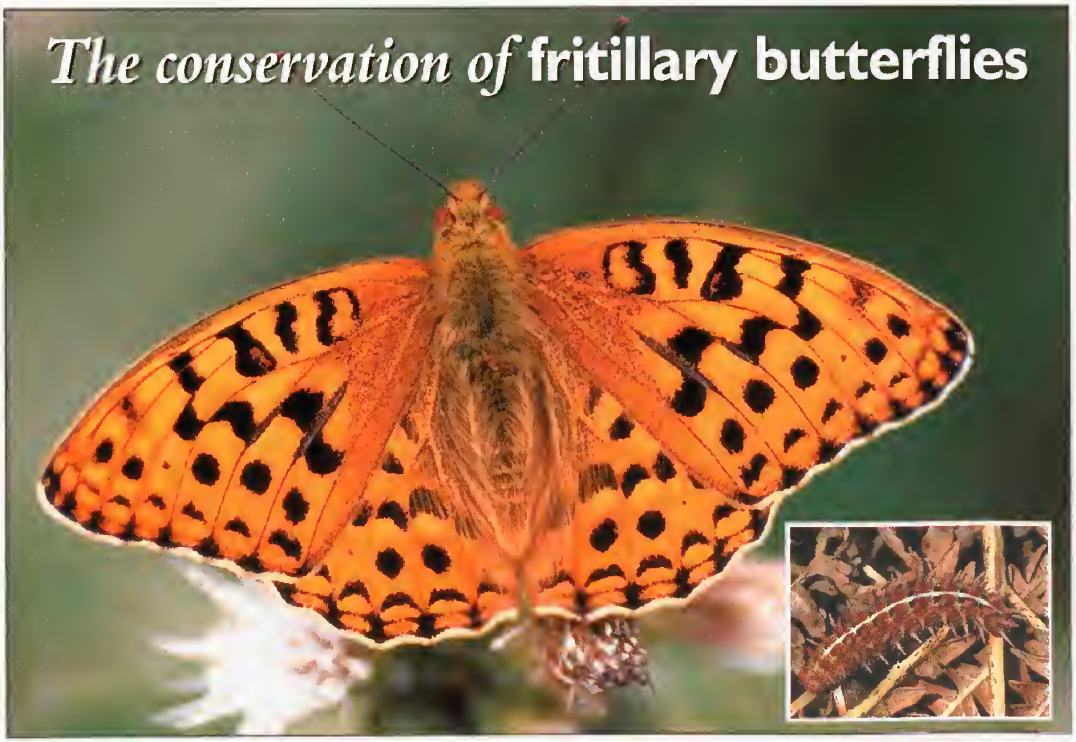
Cymru a'r afalau aur

Efallai mai Ynys Môn oedd cartref ysbrydol afalau aur yr haul. Mae teulu'r gerddinen ymhlith trysorau bywyd gwyllt Cymru – yn ogystal â'r griafolen, mae rhywogaethau sy'n unigryw i Gymru ac mae modd dadlau bod cysylltiad â diwylliant cyn-Gristnogol. Yn 1983 y daethpwyd o hyd i'r gerddinen ddof ar glogwyni yn Ne Morgannwg, ger safleoedd crefyddol cynnar. Yn y nawfed ganrif, dywedodd y mynach, Nennius, fod afalau'n tyfu ar goed ynn ger aber Gwy – byddai hynny'n gweddu i ddisgrifiad o ddail a ffrwyth y gerddinen ddof. Roedd llannerch sanctaidd gerllaw. O grŵp o goed yn Ynys Môn y daeth enw swyddogol math arall, y gerddinen oren, yn agos at Benmon lle gallai'r Rhufeiniaid fod wedi croesi'r Fenai i ddinistrio'r derwyddon. Mae yna ragor o gysylltiadau posib rhwng y gerddinen a diwylliant y Celtiaid … efallai fod afalau aur chwedlonol yr haul yn tyfu ar goed ym Môn.

The conservation of fritillary butterflies



High brown fritillary adult and larva (inset).

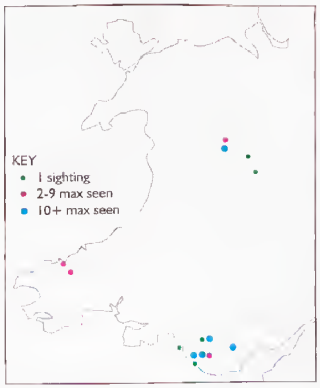
All photos: Butterfly Conservation Picture Library.

The beauty of the fritillary butterflies is sadly matched by their scarcity. The race is on to find out just what conditions they require, and to manage their remaining sites to provide these conditions. Here ***Russel Hobson*** *reports on work to conserve the two most endanged species, and describes the three species with which they may be confused.*

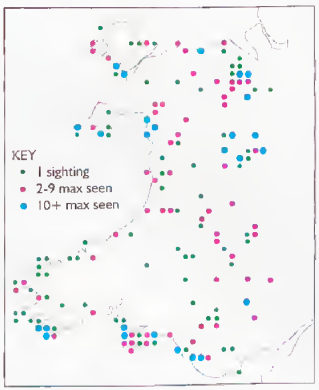
Of all our butterflies and moths, fritillaries are amongst the most entrancing. In this article I will focus on two of Wales's most threatened fritillaries, the high brown and pearl-bordered, towards which considerable conservation effort is being directed. This article will also refer to the dark green, silver-washed and small pearl-bordered fritillaries, as they can be confused with the rarer species and often inhabit the same sites. I will deal with the most well-known fritillary, the marsh fritillary, for which Wales has a significant proportion of the UK population, in a future article.

The fritillaries are characterised by their chequered brown, black and rich orange upper wing colour and subtle underside wing markings. The most widely used larval food plants are the common dog-violet *Viola riviniana*, early dog-violet *Viola reichenbachiana*, and marsh violet *Viola palustris* (the latter mainly used by the small pearl-bordered fritillary), though other violet species are occasionally used. In most fritillaries the larvæ over-winter hidden in vegetation before completing their lifecycle in spring. However the high brown fritillary over-winters as an egg on leaf litter. The egg hatches in March, requiring the larvæ to develop rapidly to become an adult by the end of June. During cool, sunny weather the larvæ bask to raise their body temperature, speeding their digestion and therefore their growth rate. High brown and pearl-bordered fritillary breeding sites are therefore restricted to areas with suitable leaf litter, as the ground temperature is higher than grassy swards, making basking a more efficient strategy.

Dark green fritillary adult (inset) and larva.



High brown fritillary 1995-9.



Dark green fritillary 1995-9.

This large butterfly was present in many parts of Wales until the 1970s. By the late 1990s there were records at just six sites. The high brown fritillary has continued its rapid decline and is now found at only two confirmed breeding localities in Wales, Allt Dolanog in Powys and the Alun Valley in the Vale of Glamorgan.

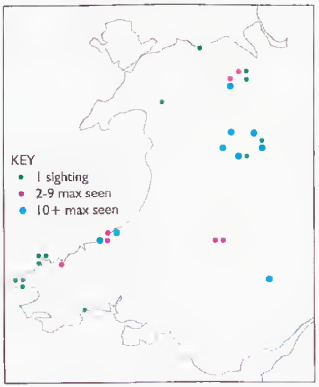
Both localities are commons with sunny, bracken-covered slopes, where continued grazing has helped maintain patches of open bracken litter with abundant violets. On many former sites the cessation of grazing has allowed thick scrub and an increase in the density of bracken litter to develop. However, the habitat quality at the two remaining localities has also deteriorated. These changes are not fully understood but it is believed that current stocking density, the timing of grazing and the use of less hardy stock are responsible.

At Allt Dolanog the commoners are sympathetic to the needs of this butterfly, and have established a Graziers Association that is receiving funding from the Countryside Council for Wales (CCW) to move sheep off the site in the early spring. A separate agreement with Powys County Council (PCC) will alter the extent of bracken harvesting that occurs every year. A detailed botanical survey has shown that violets are scarce where the bracken litter is thick; to tackle this, CCW has been involved in managing some of these areas on the steeper slopes. In the Alun Valley the local branch of Butterfly Conservation and the Glamorgan Heritage Coast project have identified all the patches with violets that could be restored. These mostly small patches are widely scattered over an extensive area.

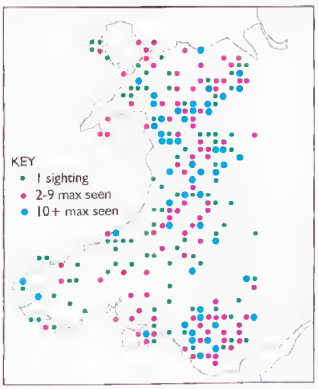
In recent years small-scale hazel coppicing trials have been successful at creating suitable conditions for the butterfly. However, this was insufficient to reverse the decline in habitat quality over the whole area. In 2002 Butterfly Conservation, partners in the Vale of Glamorgan Local Biodiversity Action Plan, successfully applied for an Aggregates Levy Sustainability Fund grant to increase the scale of this work. A management plan is being prepared in conjunction with CCW to ensure the other features of interest on the site are not adversely affected.

Pearl-bordered fritillary adult (inset) and larva.

Small pearl-bordered fritillary.



Pearl-bordered fritillary 1995-9.



Small pearl-bordered fritillary 1995-9.

The decline in the number of pearl-bordered fritillary sites has mirrored that of the high brown fritillary. There were approximately 100 sites in 1980 and by 2000 the number of sites had fallen to just 11 (Stewart et al 2003). In 2002 adults were seen at only nine sites and two of these were new discoveries. Key strongholds for this species are now restricted to the Ruthin area of Denbighshire, the Montgomeryshire *fridd* and the Ceredigion coast between Newquay and Penbryn. The strongest colonies are in Montgomeryshire, where the two new colonies were discovered in 2002. The Wildlife Trust and CCW have cleared scrub on four hectares of the Llanymynech Hill SSSI during the winter 2002/03 and there are plans to reintroduce grazing on the adjacent Wildlife Trust reserve this year. PCC and the Wildlife Trusts also carried out management work at the largest site in Montgomeryshire and the isolated Llanellwedd site in Radnorshire. Unfortunately no pearl-bordered fritillaries were seen at Llanellwedd in 2002. It is hoped that further surveys of suitable habitat nearby may find new colonies in 2003, as occurred in Montgomeryshire last year.

Ceredigion has the last known colonies of pearl-bordered fritillary in West Wales. At Cwm Soden the National Trust introduced pony grazing in 1999 and some bracken management took place. However the areas managed are small and need to be dramatically expanded if this colony is going to be secured. Five kilometres to the south, at Llangrannog, work adjacent to the coastal path by Ceredigion County Council has opened up dense gorse and created warm nectaring areas. The main breeding area appears to be on the precipitous slope above Llangrannog church, which is covered with dense gorse. The tenant farmer has entered the Tir Gofal agri-environment scheme and it is hoped that accessible sections of the slope can be managed in future.

Butterfly Conservation recently signed a management agreement with CCW for Eyarth Rocks reserve in Denbighshire. A huge amount of practical work by the north Wales branch over the last two winters cleared about one and a half hectares of dense scrub. Already pearl-bordered fritillary adults have been seen patrolling the newly cleared areas.

The work also includes experimental raking and cutting of one area of bracken to find out the best method of restoring violet-rich bracken at this site. The litter was raked off two plots of 100m^2 of dense bracken litter where there were few violets. Half of each plot was then left throughout the summer while on the other halves the bracken re-growth was cut in July. By the autumn of 2002 the raked and cut patches had over 250 violet plants compared to 8 violets in an unmanaged control plot. This work will continue to investigate which plots the pearl-bordered fritillaries prefer to breed in.

The West Wales Butterfly and Moth group has undertaken regular searches in Pembrokeshire over the past few years but without success. There is concern that these colonies may have been lost, further reducing the butterfly's range in Wales. It is hoped it may be surviving somewhere, especially as the management of coastal habitats, instigated by the Pembrokeshire Heathlands project, is now producing a much larger area of suitable breeding habitat.

The Future

The precarious position of our most threatened fritillaries, the high brown and pearl-bordered, requires a landscape-scale approach. This must ensure sustainable, sympathetic management at occupied sites but crucially also at potential sites within colonisation range. The goodwill of landowners and graziers needs to be backed up by a political will at a local and national level to deliver the funding necessary to save these butterflies. Lack of funding is limiting both the scale of site management and the monitoring required to see if the butterflies are responding positively. The current work is reliant on the goodwill and hard work of many volunteers who support Butterfly Conservation and other conservation charities in Wales. Butterfly Conservation, in partnership with other organisations, is actively seeking funding to put in place sustainable management of these sites.

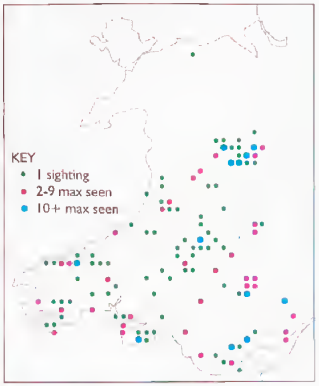
Sorting out the differences

The dark green fritillary is more widespread in Wales than our rarer fritillaries. It breeds in a wider range of vegetation, including tall grassland, often next to scrub. It is generally thought of as a characteristic species of coastal grasslands and dunes, but its strongholds in Wales also include upland areas on limestone and the edges of moorland, for instance on the commons and uplands of north-east Wales or the bracken slopes below moorland and plantations in Rhondda Fach.

The graceful silver-washed fritillary is a species normally associated with broad-leaved woodland in Wales, but it can also be found in conifer plantations where there are sunny rides and glades. It can cope with much shadier conditions than its rarer counterparts, but, even so, many modern types of woodland are too shady. Interestingly it lays its eggs in cracks or in moss, one or two metres up a tree trunk, and after hibernation the larvæ drop to the ground to seek out violets on which to feed.

Wales remains a stronghold for this species despite dramatic declines in England. It favours damp grassland with abundant marsh violet, though it can also be found on grassland with bracken or scattered scrub where the larvæ may also feed on common dog-violet. Butterfly Conservation is conducting a research programme looking at the mobility of the butterfly in Clocaenog Forest in north Wales. This work is being done on behalf of Forest Research to help further improve Forest Design plans.

Silver-washed fritillary larva (inset) and adult.



Silver-washed fritillary 1995-9.

The small pearl-bordered fritillary survives in Clocaenog by using open habitat adjacent to streams or in boggy areas. Eggs are laid on marsh violets between a metre and a metre and a half away from the stream edge, and the preferred breeding areas have short vegetation with plenty of violets. Twenty-seven suitable habitat patches of differing size occur in the forest and roughly two-thirds were occupied in each of the last two years.

The results confirm that the small pearl-bordered fritillary forms discrete 'colonies', usually with less than 100 individuals. However, there is also evidence that a few individuals travel between habitat patches, sometimes as far as three kilometres.

Pearl-bordered fritillary larvæ.

Identification

It is easy to confuse the high brown, dark green and silver-washed fritillaries and pearl-bordered and small pearl-bordered fritillaries, especially as these species are often found together on the same sites.

In flight it is almost impossible to tell a high brown fritillary from a dark green, but they do often rest on thistles or brambles to feed. This is the best time to look at the distinctive underwing markings. Identifying a proportion of the individuals in this way enables a percentage of the number of each species seen on the wing to be calculated. Catching a high brown fritillary requires a licence from the Countryside Council for Wales.

Russell Hobson is Conservation Officer for Butterfly Conservation in Wales. He has a particular interest in land management for *Lepidoptera*.

Acknowledgements

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Ceisio achub dau löyn

Mae diffyg ewyllys wleidyddol i roi arian at waith cadwraeth yn peryglu dyfodol dau o loÿnnod byw prinna' Cymru – y brith brown a'r brith perladeiniog. Mae angen gweithredu ar lefel tirwedd gyfan er mwyn rheoli eu cynefinoedd presennol a safleoedd potensial eraill. Erbyn hyn, dim ond ar ddau safle yng Nghymru y mae'r brith brown – ar dir comin yn Allt Dolanog ym Mhowys a Dyffryn Alun ym Morgannwg. Yn Nolanog, mae trefniadau pori newydd a gwaith clirio rhedyn yn hybu'r blodau fioled sy'n rhoi bwyd i'r cynrhon ac mae gwaith i hyrwyddo'r blodau'n digwydd yn Nyffryn Alun hefyd. Roedd y brith perladeiniog i'w gael mewn 100 safle yng Nghymru yn 1980, dim ond mewn naw y gwelwyd y glöyn yn 2002. Cynlluniau rheoli yw'r allwedd eto yn ei gadarnleoedd ger Rhuthun, ar ffriddoedd Maldwyn a rhwng y Cei Newydd a Phenbryn yng Ngheredigion. Y pryder yw ei fod bellach wedi diflannu o Sir Benfro.

Prosiect Gofal Gwledig Pontbren

Ffoto: Alwyn Hughes.

Disgrifia ***Alwyn Hughes*** *sut y daeth deg o ffermwyr gogledd Powys at ei gilydd i drafod dyfodol eu ffermydd a'u hamgylchedd yn gyffredinol. A'r canlyniad? Cynllun amaeth-amgylcheddol cydweithredol newydd a chyffrous.*

Rydym yn gyfarwydd â chynlluniau gwarchod yr amgylchedd megis Tir Cymen a Thir Gofal, ond mae cynllun lleol arbennig iawn yn datblygu yn nyffryn Nant Pompren rhwng Llanfair Caerinion a Llanerfyl yng Ngogledd Powys, sef prosiect Gofal Gwledig Pontbren. Mae deg o ffermydd ynghlwm â'r fenter yn cwmpasu tua dwy fil o erwau.

Daeth cnewyllyn o ffermwyr at ei gilydd gan rannu eu pryder am ddyfodol eu ffermydd a chefn gwlad yn gyffredinol. Roeddent yn cefnogi'r ffordd wledig o fyw, dulliau ffermio cynaliadwy a gwarchod cefn gwlad a'i fywyd gwyllt.

Gwyddom i gyd y bu pwyslais ar gynhyrchu yn ystod y degawdau diwethaf, ac o ganlyniad collwyd llawer o gynefinoedd naturiol. Bu gor-gynhyrchu a arweiniodd at brisiau is am anifeiliaid. Mae aelodau Grŵp Pontbren yn ceisio newid eu modd o ffermio drwy symud at ddulliau ffermio traddodiadol a chrynhoi eu hadnoddau er mwyn gwneud y defnydd gorau o'r tir. Ni thyfir ŷd yn yr ardal hon ac felly mae costau cludo gwellt i'r ffermydd yn sylweddol. Bu rhai aelodau o'r grŵp yn arbrofi gyda rhoi sglodion coed fel gwely o dan yr anifeiliad gan ddefnyddio brigau a choed gwastraff oddi ar y tir. Mae hwn yn ei dro yn troi'n gompost sy'n cael ei daenu'n ôl dros wyneb y tir a phlennir coed ifanc ynddo yn ogystal. Mae hyn oll yn lleihau costau.

Ni fydd newidiadau i'r dirwedd yn digwydd dros nos wrth gwrs – proses graddol ydyw. Hyd yn hyn casglwyd miloedd o hadau o goed brodorol ac yn dilyn cyfnod mewn planhigfa ar un o ffermydd y cynllun, plannwyd hwy mewn lleoedd addas megis ar hyd glannau nentydd neu ar diroedd nad ydynt lawer o werth i fagu anifeiliad arnynt. Plannwyd nifer o goedlannau collddail newydd ac adferwyd llawer o wrychoedd, un ai drwy eu hail blannu o'r newydd, neu drwy blygu a chau rhai na chawsant sylw ers cyfnod hir.

Crewyd pyllau newydd ac adferwyd gwlyptiroedd i'w cyflwr gwreiddiol. Gobeithir rheoli'r dŵr sy'n llifo i lawr y nentydd o'r mynyddoedd er mwyn lleihau erydiad. Cydweithir gyda phrifysgolion i edrych ar oblygiadau lleihau llifogydd ar lawr gwlad.

Mae'n fwriad gan aelodau'r grŵp i ddarparu amrywiaeth o gynefinoedd i geisio sicrhau y bydd planhigion ac anifeiliaid a gollwyd yn y blynyddoedd diweddar yn dychwelyd. Mae nifer o rywogaethau pwysig wedi ailymddangos ers pan sefydlwyd y cynllun.

Tylluan wen. Ffoto: CCGC.

Gwnaethpwyd ymdrech i ailsefydlu'r dylluan wen yn yr ardal. Gwnaeth Colin Shawyer o'r Hawk and Owl Trust astudiaeth fanwl o'r aderyn hwn drwy Brydain yn 1982 a daeth i'r casgliad mai ychydig iawn ohonynt sydd i'w cael dros 150 medr uwchlaw'r môr. Yn 2001 llwyddodd pâr o dylluanod gwynion yng nghyffiniau Cynllun Pontbren i nythu mewn simnai hen furddun a safai 400 o fedrau uwchben y môr, ac mae olion nythu wedi eu darganfod mewn safleoedd eraill ar dir tua 300 medr uwchlaw'r môr.

Codwyd tua deg o flychau nythu ar gyfer y tylluanod gwynion mewn hen adeiladau ynghyd â phum blwch arbennig o siâp triongl ar bolion neu goed ar dir uwch gan aelodau o'r Hawk and Owl Trust. Yn ogystal codwyd blychau nythu ar gyfer y cudyll coch. Mae'n fwriad datblygu'r cynllun nythu ymhellach a gobeithir denu bronwen y dŵr i nythu a magu mewn lleoedd addas yn agos at yr afonydd.

Mae aelodau'r cynllun yn frwd dros reoli niferoedd rhai rhywogaethau plaog megis wiwerod llwyd a llwynogod. Daliwyd llawer o frain a phiod mewn trapiau Larsen y llynedd. Y bwriad yw rhoddi cyfle i rywogaethau eraill i fagu'n ddiogel. Er fod cornchwiglod a gylfinirod i'w gweld ar y rhosydd, nid chânt lawer o gyfle i nythu oherwydd niferoedd y creaduriaid plaog. Bwriedir ceisio ailgyflwyno'r betrisen lwyd i'r ardal ac mae cynllunio gofalus ar droed i sicrhau cynefin addas ar eu cyfer. Bwriad arall gan yr aelodau yw cofnodi creaduriaid ac adar a welir ganddynt, er mwyn dilyn neiwiadau yn eu niferoedd dros y blynyddoedd a ddaw.

Sefydlwyd menter arall o fewn y cynllun i sicrhau fod ŵyn ac eidion a fagwyd ar y ffermydd yn gadael y lladd-dy i gael eu gwerthu i gwsmeriaid yn lleol neu ym marchnad y ffermwyr. Mae cynlluniau ar y gweill i ehangu'r fenter ymhellach.

Nid oes raid pwysleisio cymaint a fu'r fantais yn gymdeithasol i'r aelodau. Cynhelir cyfarfodydd cyson i drafod datblygiadau a chaiff pawb gyfle i ddweud eu barn. Er mwyn cael plant y ffermydd yn rhan o'r prosiect, cynhelir cyfarfod ar y pnawn Sul cyntaf o bob mis a chafwyd llawer o fwynhad gan blant o bob oed. Bu'r plant yn brysur yn adeiladu blychau nythu i adar. Llwyddwyd i gael nawdd gan gwmni Whitbread (Action Earth) a chynlluniwyd cyfarfodydd pellach i geisio magu ymwybyddiaeth a pharch yn y plant tuag at eu cynefin. 'Does dim amheuaeth fod Prosiect Gofal Gwledig Pontbren yn fenter hynod o gyffrous a phwysig. Fe weithiodd yr aelodau'n galed i'w sefydlu ac fe ymddengys fod yma batrwm i'r dyfodol ym myd amaeth, sef gwarchod yr amgylchedd yn hytrach na gor-gynhyrchu a cholli cynefin, gan sicrhau hefyd ddyfodol i'r genhedlaeth iau.

Protecting the environment Pontbren rural care project

This and the following article tell the story of a group of farmers who are concerned about the future of their farms and of the countryside in general. They have come together to develop their own 'agri-environment scheme'.

Farmers unite *for community and environment*

A home-made, grass-roots, agri-environment scheme, where farmers have chosen to work together to benefit the local community and environment, is turning heads. Could this be the way of the future, asks ***Clive Faulkner****?*

In Wales the idea that a group of farmers could work together is usually treated with a large dose of cynicism. As an Englishman abroad I am poorly qualified to comment on why this should be although I do suspect that this is more a symptom of the pressures of modern farming than a comment on our Welsh farmers.

Given this predisposition, it is all the more surprising that ten farms in the heart of Montgomeryshire have come together to do just that: work in cooperation together. The Pontbren group is a collection of farming families living in a small community west of Llanfair Caereinion, who together farm a large proportion of the catchments of the Nant Pontbren, an upper tributary of the River Severn.

Most of the farmers in the group are descended from the families who bought their own farms following the break up of the large estates in the early 1900s. Local people, so to speak. What makes this group particularly interesting is that the central idea came from the farmers themselves and not in response to some existing government grant.

Although the word is not favoured in this part of the world, and they certainly would not use it themselves, their project is rooted in sustainability. They are looking for a sustainable income for their produce, they are looking to sustain their community and culture and they are looking to manage the environment too (and here I quote one of them) "to see some of the wild animals and birds returning to breed on our farm". To achieve this the Pontbren group is developing in several very different directions at once.

For a few years now they have been developing their woodlands as a renewable resource. They plan to have their own sawmill and run it co-operatively within the group. This will allow them to supply their own needs for timber on the farms and to sell seasoned timber for furniture making and craftwork. They will convert the brashings into woodchip with a co-operatively owned chipping machine and use the woodchip as bedding for cattle and sheep instead of straw. They even plan to compost the woodchip after it has been used as bedding and to use the resultant peat-free compost in their tree nursery and to sell it as a product in its own right.

The wildlife implications here mustn't be forgotten; if they are to achieve all of these aspirations, they have to start by restoring hedges and planting new ones, and planting native trees along stream-sides and in new woodlands, as well as regenerating neglected woods. One of the group members is establishing a tree nursery, growing trees from local seed to provide planting stock for the whole group so that they can plant trees that are genetically suited to the area. Again, all very neatly giving the scheme ecological, economic and social value.

Pontbren. Photos: Clive Faulkner.

Some members of the group are now diversifying into holiday accommodation relying on low energy and recycling systems. Providing nature trails from which the countryside and wildlife of the whole area can be appreciated has also given them a new perspective on the management of wildlife.

If all of this is not enough, the group has recognised that, for the project to be properly sustainable in the long run, the farmers' children will have to acquire new skills and a new perspective on farming. So they have established monthly meetings of 'Grŵp Gwllt', working with the Wildlife Trust. This group of children and farmers have surveyed for otters, built owl and kestrel boxes, studied bird and plant identification, and have had a good laugh to boot!

With all of the above going on it should not be surprising that government agencies, universities and a procession of decision makers have taken an interest in this little area of mid-Wales. From discussions happening within the National Assembly, it is clear that the radical ideas driving the Pontbren group are beginning to interest the policy makers. Over the coming years I expect to see a recognition that farmers can work together, and can take the environment seriously, especially if they are given 'permission' to take on the responsibility themselves. I was shocked and impressed to be told that the farmers didn't want 'wildlife experts' to survey their farms, what they wanted was the training to do it themselves and the funding for the conservation management. As the farmer is in the field day in, day out, this did make rather a lot of sense to me. This principle, where farmers work out how best to achieve desirable wildlife and environmental goals, could surely be extended?

Perhaps it is time to stop giving farmers agri-environmental schemes that specify rigid rules that cannot be varied, such as prescribing numbers of livestock units per hectare for specific periods for each field. Maybe we should give them the 'permission' or 'ownership' to manage for wildlife using their judgment and their local knowledge.

If agri-environment schemes paid farmers on the quality of habitat they produced, we might all end up with a much richer countryside.

Putting the future aside, we shouldn't kid ourselves that this Pontbren project is all about nature conservation – it isn't. It's about a community working to give itself a future and if this benefits wildlife, then that is all to the good. As one of the Pontbren farmers explained it to me, "There has always been a steady trickle of young people leaving to seek work; recently this threatens to become a flood. We like to think that what we are doing is a step towards stabilising the situation and hopefully in the future reversing the trend, recycling money here within the local community by using local suppliers and local labour – our neighbours and members of our own community."

Shouldn't we all wish them luck?

Clive Faulkner is Conservation Officer for the Montgomeryshire Wildlife Trust

Getting it locally – *food initiatives in Powys*

Photo: Richard Pitts.

Vegetable boxes are becoming popular.

One way that farmers and growers can compete in a global food market, to the benefit of the local economy, the environment and the consumer, is by providing fresh, flavoursome local food. Are you getting it locally? ***Richard Pitts*** *describes local food initiatives in Powys.*

Organic farming brings obvious benefits to the environment. When insecticides, herbicides and artificial fertilisers are removed, biodiversity on the farm increases. *The Biodiversity Benefits of Organic Farming*, a Soil Association report published in May 2000, lends further support to the idea that a 'win win' situation can be created if, by becoming more organic, our approach to food production enhances our environment at the same time.

Some pioneering work by the Powys Public Procurement Partnership (PPPP)[1] has taken this a step further, by trying to identify the benefits that arise from purchasing local, especially organic, food. The work was partly inspired by the new duty placed upon Councils to consider the economic, environmental and social well-being of their areas. Compulsory Competitive Tendering is now a thing of the past, having been replaced by Best Value and the Wales Programme for Improvement. This means that public agencies should now have a freer hand to specify other criteria, such as environmental considerations, when making purchases. So with these two big drivers in place the Partnership sought to explain why more local and local organic food was not being purchased by public bodies.

To find out whether local food was indeed best value and, if it was, just how it contributes to the environmental, social and economic well-being of the area, we enlisted the help of the Assembly's Health Impact Assessment

Unit to engage us in a bit of 'blue sky thinking'. We brought together as many specialists as we could muster to discuss the big question 'what would happen if public agencies purchased more local organic food?' The Powys partnership was able to conclude that procurement of local food, organic where available, would have a significant impact in the following three areas:

- **the generation of additional local employment**

This comes particularly through the creation of new community and business enterprises. Twenty-six per cent of local food businesses have created jobs in the last 12 months compared with only 8% of other non-local food producers.

- **the nutritional impact of locally produced and processed (including organic) food**

With appropriate quality control measures applied at the production, processing and storage stages, locally grown organic produce can deliver added value in terms of microbiological and chemical safety and in terms of nutrient content. It also seems common sense that fresh local produce, if it really is fresh, will taste better and this may well make the food more palatable and more satisfying. This has been borne out by work at Llanidloes Hospital where patients have shown a preference for the local meat.

- **the impact on local road traffic**

The main impacts of transport are those resulting from a decrease in larger lorries, but offset by an increase in traffic frequency involving smaller, faster moving vans. While these changes affect the environment, the existing evidence doesn't enable us to say whether they would bring about positive or negative impacts on climate change.

A number of other impacts upon the environment were also identified. For example, local food enterprises have more potential to reduce energy use in production, at the same time achieving national and local biodiversity and landscape objectives. This was illustrated in a report from the Foundation for Local Food Initiatives (Flair) (**www.localfood.org.uk**).

Their work found that local food producers are significantly more likely to be certified organic or taking part in a recognised environment protection scheme than were non-local producers. They are also able to enhance the viability of traditional farming systems that naturally benefit the environment. For example, traditional breeds and old varieties are present on nearly twice as many local food enterprises compared to non-local ones.

Enhancing and conserving the local distinctiveness of landscape character is another advantage that local food producers can bring, as many local marketing and branding initiatives link their products to the protection of the landscapes from which they originate. The conservation of air, soil and water, including reduced levels of pollution and waste, is something that a local or organic food producer is more likely to be concerned with. The Flair report found that more than twice as many local food enterprises reduce waste, compared to those outside the sector.

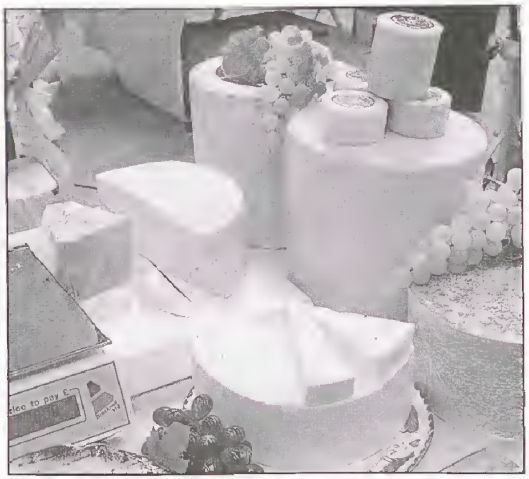

Photo: Barry Hamilton.

Some locally distinctive cheeses.

The Partnership's work shows that, for any public agency struggling to find ways to deliver its new duty, procuring local food and, wherever available, local organic food, is the best option. It provides arguably the most potent single opportunity to deliver positive impacts upon the environmental, social and economic interests of their area.

So to answer the question that we posed at the beginning, namely why isn't it happening already, the reasons why our public bodies should purchase more local and organic food seem clear and compelling enough; but the fact is that at the moment there simply isn't the produce grown locally to satisfy the local demand.

Photo: Peter West

A mouth-watering spread of local food.

The way forward

This is where Powys Food Links comes in. It will encourage local producers to work together and compete for contracts with existing public sector supply companies. This way they will be able to meet the defined quality standards and provide the guarantee of supply that is critical to an organisation like Powys County Council, which provides in the region of 75,000 meals a week[2].

Once the supply is able to meet the demand then a significant market exists for our local and organic producers, who could compete for a slice of the £60million spent by Welsh public agencies on food each year. What sort of difference would that amount of money make to enhancing our environment at the same time? There's plenty more food for thought in this whole topic.

Community Supported Agriculture

Another part of the local food work that is underway in Powys is the Community Supported Agriculture (CSA) project. This originated from Powys Food Futures and is now being carried forward by Glasu, the LEADER+ programme for Powys.

CSA schemes offer local people the opportunity to enter into a partnership with a grower, who undertakes to provide them with produce from the farm or land. A core group of customers and the grower manage the scheme and negotiate the terms of the 'share price' and instalment dates. Deliveries are usually made weekly to a regular place, from where the shareholders collect their produce. The beauty of these schemes lies in their simplicity and flexibility. CSA schemes can vary from a producer delivery scheme, vegetable box scheme, or people owning shares in a dairy cow and getting cheese in return for their investment. The grower has a guaranteed income (which can be made up-front or in instalments) and an end to cash flow worries. The shareholders get peace of mind from knowing where their food is coming from and have the chance to buy really fresh and locally grown produce. Another important part of the CSA approach is that the risks and benefits are shared between the grower and the shareholders.[3]

Reconnecting agriculture

Strengthening the links between farmers and their communities is the aim of this project, which sees groups of primary pupils making regular visits to a local farm to experience the whole farming and environment story. Over the year the children will be able to see the whole life-cycle of crops and animals. They will germinate corn in the classroom, see it break through the soil on the farm, watch it grow, be harvested and turned into flour in a local mill and make bread with the finished product.

Whilst it may seem like an education project, it is just as concerned with the longer term aim of stimulating a new local market for local growers. With pupils taking their bread or preserved fruit home to their parents, the whole family will be encouraged to visit the farm and its farmshop. Five schools in Montgomeryshire are already visiting the three farms in this the projects first season.[4]

Photo: Richard Pitts.

Richard Pitts worked as the Local Agenda 21 Officer for Powys County Council for the last eight years, and set up Powys Food Futures, the first initiative of its kind in the UK and the only one in Wales. This work continues through Powys Food Links and the Glasu Leader+ programme. He is a keen vegetable gardener and cook too.

1 The Powys Public Procurement Partnership (PPPP) consists of the Soil Association, Powys County Council, the NHS Health Care Trust and Cardiff University, with help from Dyfed Powys Health Authority, Powys Food Links and the National Farmers Union (Cymru). Copies of the final report, published in December 2002, can be ordered free of charge from: Powys County Council, St. John's Offices, Fiveways, Llandrindod Wells, Powys LD1 5ES.

2 For more information on the work of Powys Food Links, contact Suzanne Davies, the Project Officer on 01982 551857.

3 For more information about the pilot CSA's in Powys or the Glasu project contact Becky Webb on 01982 552224.

4 For more information on the schools project contact Lavinia Vaughan on 01686 688171.

Bwyta'n lleol

Mae cynlluniau newydd ym Mhowys yn datblygu ffyrdd o helpu tyfwyr bwyd yr ardal i werthu i'w marchnad leol – er eu lles economaidd nhw ac er iechyd y cwsmeriaid. Mae Cysylltiadau Bwyd Powys yn annog cynhyrchwyr i gydweithio er mwyn cystadlu am gytundebau cyhoeddus, fel y Cyngor Sir sy'n darparu tua 75,000 o brydau bob wythnos ac asiantaethau Cymreig eraill sy'n gwario £60 miliwn y flwyddyn ar fwyd.

Mae cynlluniau eraill yn creu cysylltiad rhwng cynhyrchwyr a chwsmeriaid unigol a rhwng ffermydd ac ysgolion lleol. Fe ddangosodd gwaith ymchwil fod bwyd lleol yn creu gwaith, fod bwyd lleol da yn saffach, yn fwy maethlon ac yn blasu'n well. Ymhlith yr effaith amgylcheddol, byddai llai o lorïau mawr ar y ffyrdd, llai o wastraff a llygredd a hwb i ffermio traddodiadol.

Cardigan Bay *and its conservation importance*

The sea around Bardsey Island.

Given the innate appeal of seabirds, dolphins and whales, it is no wonder that the special beauty of Cardigan Bay has come to prominence recently. The efforts of many dedicated individuals are starting to reveal the scale of the Bay's importance, but there is much still to discover, as ***Mick Green*** *and* ***Mark Simmonds*** *report.*

Cardigan Bay is special. It is special to many people in many ways. It has long been a holiday destination for thousands of people every year, it is a place of myths and legends and home to a wide range of wildlife. It is also, unusually for a marine area, a definable location that people can identify with. This had led to Cardigan Bay being the focus of much conservation activity over the last decade and, in some significant ways, leading the drive for better marine conservation measures in the UK more generally. One of the results of this focus has been an increasing amount of research and survey work on and under the waters of the Bay. This work has re-enforced the 'specialness' of the Bay, its conservation importance and the need for adequate protection measures for the marine environment. This article looks at just two areas of importance – the birds and the cetaceans (whales, dolphins and porpoises).

Recent history

Cardigan Bay became a focus for campaigning work to improve marine protection in the late 1980s, with many national bodies such as Greenpeace, the Whale and Dolphin Conservation Society (WDCS) and WWF working with local campaigners such as Friends of Cardigan Bay. This interest has led to some real improvements in the environmental regulation of offshore industries, although there is still a lot to be done. Around the same time, the advent of the EU Habitats Directive brought in a mechanism, through its Special Areas of Conservation (SACs), to protect significant areas of sea. Three large areas in, or partly in, the Bay have been put forward as candidate SACs, re-enforcing the importance of these waters.

Birds

The main focus of interest in the birdlife of the area used to be the islands at the northern and southern extremities of the Bay, all of which have a long history of bird recording. Bardsey, Skomer, Skokholm and Grassholm between them are home to thousands of nesting birds. Around 50% of the world's population of manx shearwater breed on the islands of Skomer (up to 185,000 pairs), Skokholm (40,000+ pairs) and Bardsey (c4,500 pairs).

Bottlenose dolphins with calf, (note neonatal bands), from the bow of the Rainbow Warrior.
All photos: Mark Simmonds.

These birds feed offshore with large daily feeding movements off the coasts of Cardigan Bay. Grassholm is the only gannet colony in Wales, with over 28,000 pairs. These birds can be seen feeding in the waters of the Bay especially during the breeding season. Their breeding colonies are all afforded protection as National Nature Reserves and Special Protection Areas (SPAs) under the EU Birds Directive, but there is currently no protection for the important offshore feeding areas that are vital to the birds' survival.

Smaller breeding colonies of seabirds, including guillemot, razorbill, cormorant, shag, fulmar, kittiwake and gull species, are located elsewhere around the coast. Although generally small, some of these colonies contain more than 1% of the UK population, making them of national importance, and they are protected as SSSIs. This includes cormorant colonies at Penderi, Cwmtydu and Trwyn Cilan and lesser black backed gulls on Cardigan island.

The waters of the Bay are used by many birds on passage. These include guillemots, razorbills, arctic, great and pomerine skuas, sooty shearwaters, fulmars, kittiwakes and several species of tern, all seen by sea-watchers at Strumble Head on the north coast of Pembrokeshire. Weather systems influence seabird numbers, with south to south-westerly gales in particular pushing birds into the Bay.

In the 1980s, winter counts of birds off Borth beach, in the centre of the Bay's coastline, revealed large numbers of wintering great crested grebes and red-throated divers. Subsequent surveys have shown that the northern waters of the Bay, from Sarn Cynfelyn up through Tremadog Bay, hold nationally important numbers of several species. Red-throated diver, great crested grebe, slavonian grebe, cormorant, common scoter, red-breasted merganser and scaup all occur in large numbers. Other species regularly recorded include eider, long tailed duck, velvet scoter and goldeneye. These figures make Cardigan Bay the most important wintering site in the UK for red-throated diver, the second most important site for common scoter and near the top of the list for great crested grebe and slavonian grebe.

The Bay's coastline provides habitat for waders and cliff-nesting species, foremost of which is the chough. The Welsh coast, particularly the Llŷn, Ceredigion and Pembrokeshire, is home to a large percentage of the UK's population. Peregrines also nest on the coastal cliffs and, along with other cliff top species such as stonechat, add to the diversity of this important area.

Cetaceans

The general situation for cetaceans in UK and European waters gives cause for concern and for some populations at least, there is strong evidence of decline. Without good information we cannot be sure about the status of populations (Simmonds,1994). There has been little systematic study of these animals in UK waters and their aquatic lifestyles make them notoriously difficult (and often expensive) to study anyway. Whilst Cardigan Bay benefits from some excellent viewing points from which to observe cetaceans (for example, Newquay seafront, Strumble Head and Bardsey Island), as elsewhere in the UK there has been little offshore survey work.

Unfortunately, the last large-scale survey of cetaceans in northern European waters (the 1994 SCANS survey) did not include Cardigan Bay or a significant coverage of the Irish Sea. However, of the 80 or more species known world-wide, over a third (28) have been recorded in UK waters and 15 have featured in sightings or strandings in Cardigan Bay. However, it is not so much the range of species recorded in the Bay that makes it of importance, but the presence of several locally-based viable populations of small cetaceans. Indeed, the primary

purpose of one of the Bay's SACs is to protect the local 'population' of bottlenose dolphins *Tursiops truncatus*. (The term 'population' is used here to describe a breeding group of animals that exhibits a relatively high degree of residency in a core area.)

This large grey-black dolphin with the archetypal 'grin' is the best known of any cetacean, but its survival in the UK and elsewhere in Europe looks precarious. The Cardigan Bay population is one of only three discrete groups found in UK waters. The other two are centred on the Moray Firth in Scotland and the coasts of south-west England. It is impossible to calculate the viability of the Cardigan Bay dolphins with any certainty, but the population is likely to number around a hundred individuals.

Surveying the sea for dolphins.

In the Autumn of 2002, WDCS led a Bay-wide transect survey with the support of Greenpeace, using the Rainbow Warrior as a survey vessel. Bottlenoses were encountered in various places, including to the north in Tremadoc Bay, where two recently-born calves were observed.

This species has also been closely and systematically observed from the shore at New Quay for a number of years (Bristow and Rees, 2001 and Bristow et al., 2001). This remarkable study, which started in 1989, showed that the bottlenoses use New Quay Bay all year round. By the beginning of 1997, 16 dolphins could be recognised by their markings. 'Residents' were seen in all months of the year, whilst some - termed 'regular visitors' – were seen at certain times of the year. Others ('migrants') only joined the residents for a period of days or weeks.

The research confirmed that this sheltered bay was a nursery area for the dolphins. However, in 2002, a significant and worrying decline in both group size and the incidence of groups containing small calves was seen. Bristow et al. (2001) noted that the discharge of shell waste from the local whelk processing plant, amounting to a thousand tonnes in 1989, has coated the adjacent sea bed and that the dolphins made less use of this previously-favoured locality.

The second species that seems to be particularly important in Cardigan Bay is the harbour porpoise, *Phocoena phocoena*. These diminutive animals are one of the most difficult cetaceans to spot and follow. Very few sightings are made if waters are not calm, and this may make them seem less common than they really are.

Pierpoint et al. (1998) reviewed the status of the harbour porpoise in west Wales. They based their conclusions on data from a number of sources: observer networks, wardens on Skomer, Skokholm and Ramsey, the RSPB and other systematic watches (notably from Strumble Head and the Cromer peninsula) and the work of the Cardigan Heritage Coast team. They showed that harbour porpoise were present throughout the coastal waters of the Bay, with the highest probability of sightings at Strumble Head, around the Pembrokeshire islands and the Gower Peninsula, compared to sites farther north. (The importance of this area was also shown by the WDCS/Greenpeace 2002 survey.) However, their analysis did not include data from Bardsey where de Boer et al. (2002) suggest that porpoises are also important.

Despite its elusiveness, the harbour porpoise is the most commonly encountered species in the Bay. It is clear that calving and nursing of calves occurs here (22% of sightings from Bardsey Island were of mother-calf pairs) and this can be compared with declines reported in other European waters (de Boer et al., 2002).

The third species for which the Bay is particularly important is the Risso's dolphin *Grampus griseus*. These animals appear relatively shy and generally seem to stay away from vessels. At this time, we have no idea of population size, status or residency of these enigmatic animals. However, they are far from rare in the Bay.

Indeed, casual sightings collected over a number of years from Bardsey Island (in order of decreasing numbers) were found to be harbour porpoises, then Risso's dolphins and then other species (i.e. unidentified dolphin species, bottlenose dolphins, common dolphins, minke whales, long-finned pilot whales, killer whales and unidentified whale species).

Ringing a Manx shearwater.

Conclusion

It is clear that Cardigan Bay is a very special place for wildlife. The birds and cetaceans are all top of the food chain, indicating that the Bay must support important and viable ecosystems. The nature of the marine environment is such that many of the threats come from outside the protected areas. Chemical and noise pollution, the effects of overfishing and other threats know no boundaries, and mobile animals such as birds and cetaceans are also no respecters of artificial lines drawn around areas of sea. We need to make the most of current designations to protect these important waters, as well as developing effective conservation measures for our wider seas. Indeed, a reasonable argument can be made that the entire area of the bay itself should be managed for conservation with the SACs/SPAs being part of such a regime where the strictest measures could apply.

The development of work in Cardigan Bay has also shown how important research and survey is – we simply don't know what we have in much of our seas and further work is required. The story in Cardigan Bay is one of much determined effort by individuals and voluntary groups. In the long term, resources will need to be found for continued monitoring and research to give greater security to the special wildlife of Cardigan Bay.

Mick Green is an independent wildlife surveyor, based overlooking Cardigan Bay; **Mark Simmonds** is Director of Science, Whale and Dolphin Conservation Society.

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Heb ei Fae ...

Mae dadl tros reoli'r cyfan o Fae Ceredigion er mwyn cadwraeth, gan gadw'r rheolau mwya' caeth at yr Ardaloedd Cadwraeth a'r Ardaloedd Gwarchodaeth Arbennig. Tanlinellodd gwaith ymchwil pa mor arbennig yw'r Bae ac mae'r ffaith fod yr adar a'r morfilod yno ar ben ucha'r gadwyn fwyd yn dangos ei fod yn cynnal ecosystemau pwysig. Ar un adeg, yr ynysoedd oedd canolbwynt diddordeb adarwyr ac mae'r rheiny'n cynnwys poblogaethau o bwys rhyngwladol, ond does dim

gwarchodaeth i'w hardaloedd bwydo ac mae'n amlwg bellach fod poblogaethau pwysig o adar mewn rhannau eraill o'r Bae. Nodwyd 15 math o forfil yno ond yr elfen bwysica' yw'r grwpiau lleol hyfyw o ddolffiniaid a llamhidyddion. Oherwydd natur y môr, daw llawer o'r bygythiadau o'r tu allan. Dyw cemegau, swn na gor-bysgota – na'r creaduriaid chwaith – ddim yn cydnabod ffiniau artiffisial. Rhaid gwneud y gorau o'r dynodiadau gwarchodaeth a datblygu mesurau cadwraeth ar gyfer y môr ehangach.

Nodiadau'r **Cynulliad/Assembly** *Notebook*

gan/by **Gethyn Williams**

Confusion, as Cindy Lauper once noted, is nothing new. How to deal with legislation in the Assembly gets heads scratching, time after time. Energy is one of those policy areas where devolution in practice amounts to a pretty mixed bag. Recent offshore wind planning applications have been lodged under different Government Acts, leading to confusion in the minds of the public as to who is really in charge. The political arguments in favour of a review of energy needs are moving forward, but the public message is unclear.

Earlier this year the UK issued its Energy White Paper. Generally welcomed by proponents of renewable energy and energy efficiency, it still left a cameo role for nuclear power, making it all the more crucial for a viable renewable energy market to become established now. In Wales, the Economic Development Committee held its own review into renewable energy and energy efficiency. Largely endorsed by Minister Andrew Davies, it failed in one serious respect by omitting transport from its brief, but did set energy generation benchmarks. Acceptance however does not necessarily equal action.

Two factors currently prevent the necessary changes: first there is poor awareness amongst the public of the bigger picture, of our resource use on a global level and its impact on climate change. This is something on which all governments should be leading, the Welsh Assembly Government being no exception. Second, energy costs are relatively low, making it difficult for the new renewable technologies to break into markets. Whilst the UK White Paper and Assembly reviews both accept the need for renewables to develop, neither seems prepared to invest sufficiently in such ideas - leading to an over-reliance on the private sector to deliver.

Whilst we wait for public policy and public debate to catch each other up, a more striking argument is emerging: the UK Sustainable Development Commission's claim that to assume Royal Commission targets for cutting carbon emissions by 2010 (in line with Kyoto principles) would be met is now 'wildly optimistic'[1], especially while little is done to address society's ever-increasing demands for energy. The challenge for the Welsh Assembly Government is greater than most, as the world looks to our localised sustainable obligation to tackle what remains a global problem. Reforming energy policy and reducing energy demand, with wider implications for the planning process, health and the environment, is central to the principles of sustainable development and to improving quality of life in Wales.

Increasing renewable energy production will help, but while markets remain so competitive, technology is slow to improve. Major investment in research and development should be undertaken immediately, in order to exploit the renewable technologies Wales will need 10 years from now. This leaves the wider and harder task for the Assembly; to educate meaningfully and instil energy efficiency practices throughout society, not simply as a cost-reduction exercise for the business community.

Gethyn Williams is Assembly Information Officer for Wales Environment Link. The views expressed above are those of the author and not necessarily those of the members of WEL.

Reference

1 From UK SD Commission Press Release, 24.02.03
www.sd-commission.gov.uk/events/news/pressrel/030224.htm

Fel y dywedodd Cindy Lauper unwaith, does dim yn newydd mewn dryswch. Mae delio â deddfwriaeth yn y Cynulliad yn achosi crafu pen cyson. Ynni yw un o'r meysydd polisi ble mae datganoli ymarferol yn eitha' cymysglyd. Cafodd ceisiadau am hawl cynllunio i godi gorsafoedd gwynt yn y môr eu cyflwyno dan wahanol Ddeddfau, gan arwain at ddryswch ym meddyliau'r cyhoedd ynglyn â phwy sy'n rheoli. Tra bod y dadleuon gwleidyddol o blaid arolwg o anghenion ynni yn datblygu, mae'r neges gyhoeddus yn niwlog.

Yn gynt eleni, cyhoeddodd llywodraeth y DU y Papur Gwyn ar Ynni. Ac yntau wedi ei groesawu'n gyffredinol gan gefnogwyr ynni adnewyddol a darbodaeth ynni, roedd eto'n cadw rôl fechan i ynni niwclear, gan ei gwneud hi'n fwy allweddol nag erioed fod marchnad hyfyw ar gyfer ynni adnewyddol yn cael ei chreu yn awr. Yng Nghymru, cynhaliodd y Pwyllgor Datblygu Economaidd ei arolwg ei hun i ynni adnewyddol a darbodaeth ynni. Gyda'r Gweinidog, Andrew Davies, yn derbyn rhan fwya' o'r casgliadau, methodd yn ddrwg trwy beidio ag ystyried trafnidiaeth, ond fe osododd feini prawf ar gyfer cynhyrchu ynni. Dyw derbyn, er hynny, ddim yn gyfystyr â gweithredu.

Mae dau ffactor yn rhwystr i'r newidiadau angenrheidiol ar hyn o bryd: i ddechrau, diffyg ymwybyddiaeth gyhoeddus o'r darlun mwy, o'n defnydd byd-eang o adnoddau ac effaith hynny ar newid hinsawdd. Dyma fater y dylai pob llywodraeth fod yn arwain arno, gan gynnwys Llywodraeth y Cynulliad Cenedlaethol. Yn ail, mae costau cymharol isel ynni yn ei gwneud hi'n anodd i'r technolegau adnewyddol newydd wneud argraff ar y marchnadoedd. Tra bod Papur Gwyn y DU ac adolygiad y Cynulliad ill dau yn derbyn yr angen i ddatblygu dulliau adnewyddol, dyw hi ddim yn ymddangos fod yr un o'r ddau'n barod i fuddsoddi'n ddigonol mewn syniadau o'r fath – gan roi gormod o bwysau ar y sector preifat i gwrdd â'r angen.

Wrth i ni aros i bolisïau cyhoeddus a'r ddadl gyhoeddus ddal ei gilydd, mae dadl fwy trawiadol yn datblygu: honiad Comisiwn Datblygu Cynaliadwy'r DU ei bod yn "hynod o optimistaidd"[1] i gymryd yn ganiataol y bydd targedau'r Comisiwn Brenhinol ar gyfer torri ar allyriadau carbon erbyn 2010 yn cael eu cwrdd (yn unol ag egwyddorion Kyoto), yn enwedig gan nad oes fawr ddim yn digwydd i gywiro'r galw cynyddol am ragor o ynni. Mae'r her i Lywodraeth y Cynulliad yn fwy am fod y byd yn edrych at ein hymrwymiad lleol i gynaladwyedd i ddatrys problem sy'n parhau yn un fyd-eang. Mae diwygio ein polisi ynni a gostwng y galw am ynni, gydag oblygiadau ehangach i'r broses gynllunio, i iechyd a'r amgylchedd, yn ganolog i egwyddorion datblygu cynaliadwy ac i wella ansawdd bywyd yng Nghymru.

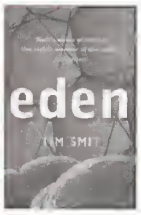
Bydd cynyddu lefelau o ynni adnewyddol yn help ond, tra bod marchnadoedd yn parhau mor gystadleuol ag y maen nhw, araf fydd technoleg i wella. Mae angen buddsoddi sylweddol ar unwaith mewn ymchwil a datblygu, er mwyn manteisio ar y technolegau adnewyddol y bydd eu hangen ar Gymru ymhen 10 mlynedd. Mae hyn yn gadael y dasg ehangach, ac anoddach, i'r Cynulliad: i addysgu'n ystyrlon a thrwythio'r gymdeithas mewn dulliau arbed ynni, nid dim ond er mwyn torri costau i fyd busnes.

Gethyn Williams yw Swyddog Gwybodaeth y Cynulliad i Cyswllt Amgylchedd Cymru. Ei ddidd ef yw'r safbwyntiau yn yr erthygl, heb iddyn nhw fod o angenrheidrwydd yn farn aelodau CAC.

Cyfeiriad

1 O Ddatganiad i'r Wasg gan Gomisiwn Datblygu Cynaliadwy y DU, 24.02.03
www.sd-commission.gov.uk/events/news/ pressrel/030224.htm

Green **Bookshelf**
Silff Lyfrau *Amgylcheddol*



British Bats
John Altingham, New Naturalist Library No. 93 Harper Collins
£35.00 Hardback ISBN 000 220140 2
£20.00 Paperback ISBN 000 220147 X

The latest volume in the *New Naturalist* Library is another book on British mammals, or some of them. With bats arguably being the most successful and diverse group of mammals ever to evolve, and one in three of our native British land mammals being a bat, it is about time they had their own volume.

The author, John Altringham, is a professor of Biomechanics at the University of Leeds, so expect a dry incomprehensible text. The reality is entirely the reverse. This man has the remarkable ability to explain the complex in a simple and easily understood style, particularly to the mechanically challenged like myself. How each bat species behaves in flight and foraging is down to wing loading and aspect ratio. I wish someone would work this out for bumblebees. I had never thought about the problems of being a heavily pregnant bat.

Apart from being capable of powered flight, bats are also one of just two groups of mammals which have sophisticated echolocation systems; the other being the whales and dolphins, the subject of another *New Naturalist* in preparation. But the predator-prey arms race that is going on every time you see a bat in flight is far more sophisticated than anything George W has ever heard of. Smart weapons or what?

This is the first time I have seen an elegant new meaning for a word in the English language. 'Gleaning' to bat workers, and presumably bats as well, means 'the capture of stationary prey from the ground, leaves, or other surfaces, during which the bat may hover or land'.

Apart from the ubiquitous brown rat, one being within five metres of each of us at all times, bats live closer to man in the UK than any other mammal. Several species roost unnoticed in our homes, and some are now almost entirely dependent on man-made structures for their survival. This includes plans for a remarkable post-modern icehouse structure funded by CCW, which I am sure CADW would list immediately, if it is ever built.

In this book, the author describes the natural history of bats within a functional and evolutionary context, which works very well. All the different aspects, from their origins and evolution, through their biology and ecology to individual descriptions of species past and present are covered. The volume ends with chapters covering the conservation issues, how to study them, and an account of practical ideas for further investigations that could be undertaken by anybody.

Superbly illustrated throughout with photographs by Frank Greenaway and wonderful drawings by Tom McOwat, it is the first *New Naturalist* for a long time that I have sat and read from cover to cover.

Nigel Ajax-Lewis

Eden
Tim Smit, Corgi Books, 2002
£7.99 Paperback ISBN 0 552 14920 9

This is the story of how a dream became the eighth wonder of the world. The Eden Project in Cornwall changed the lives of the many people involved with its creation, and its purpose is to change the lives of the many more who come to visit it. A grandiose ambition, you may think, for just another visitor attraction. Which is exactly what it is not, as even the most world-weary reader, on turning the last page of the postscript, would be forced to confess. As Tim Smit says, Eden is not a product but a place of the heart.

So much for the inspiration: what about the ninety-nine percent of any enterprise which consists of perspiration? Smit does not gloss over the crises, the endless meetings, the glad-handing, the tyranny of budgets and funders and business plans. This, indeed, is the real story, and at times the hard graft makes for sinewy reading, but it all adds to the sense of wonder that the vision was made flesh. Smit's main message is that the project was as much about building a team as it was about building structures.

Moreover, even at its densest, his story is lit with shafts of humour, barbs, and felicitous phrases. Whenever he has a go at the bureaucrats in suits or sums up the engineers' view of architects, you know it is not without justification. When he says that non-government organisations (NGOs) are to acronyms what Ireland is to Guinness, you have to smile.

He is a persuasive writer, a spinner of words, but you sense that turning a place in the imagination into giant green bubbles has probably pushed Smit and his conspirators far through the normal pain barrier. Two ideas kept him going: Tinkerbell Theory, which says that if people believe enough in something, it will exist; and Last Man Standing, which just means you persist regardless, never taking no for an answer.

He is relentlessly positive. Sometimes this goes beyond the plausible. While most of his descriptions of people ring true, I have more than an inkling that he has sanitised some of the more difficult relationships. This is entirely understandable, since Eden is a kind of Indian rope trick in which the participants not only had to believe in the ascent of the rope, but had to climb it as well. Total honesty is never possible in books of this kind, unless the aim is to fatten lawyers.

In the early days Smit came to Wales to find inspiration, and I could not help but compare the success of Eden to the disappointments of our own plant dome at the National Botanic Garden. Along with many, I believed in the mission which the first Director at the Garden had, to make it a new kind of institution, with those buzz words of our time, sustainability and biodiversity, genuinely at its heart. Somewhere along the line the vision seems to have crumbled, and I know that if I want to fill my spirit with hope for this planet, I will have to go to Cornwall and not Carmarthen.

James Robertson

Nature *at large*

Trevor Dines investigates the vanishing flowers of the field

To many people, plants are powerful triggers of memories. I suspect that most people have their own recollections from their childhood or youth relating to the wild plants that grew around them. My own mother remembers fondly the hours she spent as a child picking cowslips to make wine.I myself recall vividly finding, at the tender age of twelve, bluebells and early purple orchids in a wood on the farm where I lived in Hampshire. And I also remember sheets of poppies growing in the fields my father cultivated, how the red flowers stood out against the golden barley in the late sun of endless summer holidays.

In the *New Atlas of the British and Irish Flora*, arable flowers were identified as the group that had undergone the most remarkable decline in distribution during the last 30 years. Given my agricultural background I've always had a soft spot for this group, and these findings were no real surprise. Although some species such as pheasant's eye *Adonis annua* and mousetail *Myosurus minimus* were known to be declining at the time of the first *Atlas of the British Flora*, it was not until the publication of *Scarce Plants in Britain*, that the scale of the problem became evident.

Thirteen species, including corn buttercup *Ranunculus arvensis* and shepherd's-needle *Scandix pecten-veneris* were shown for the first time to have undergone considerable declines, and were recorded from only between 16 and 100 10-km squares. A recent catalogue of the rarest species of our flora included nine arable plants which occurred in less than 16 10-km squares. More astonishingly, of 14 species known to have become extinct in Britain, seven were from arable fields and all these had been lost since 1970. Wonderful plants like downy hemp-nettle *Galeopsis segetum* and narrow-leaved cudweed *Filago gallica* can no longer be found as native plants in Britain.

You may wonder why we should really be concerned about a bunch of weeds and what this has to do with Wales, especially with its largely pastoral landscape. In my own view, it's all to do with history and the cultural significance of plants.

We now know that the vast majority of British arable flowers are not strictly native. Instead, they were probably brought here by Neolithic farmers as agriculture spread to our shores from Europe around 3,500 years ago. As seed corn was exchanged between neighbouring farms, so the 'weeds' went with them. With no methods of chemical or efficient mechanical control, complete communities of weeds developed over the centuries. These communities, which show subtle variations in species composition depending on climate and soil-type, appear to be completely natural to us now, belying their ancient ancestry.

I find this wonderfully evocative. Not only are these plants, which we call archaeophytes, worth conserving for their own sake, they have an unparalleled cultural significance that must be preserved; they are relics of ancient agricultural patterns that are now lost. We are only just beginning to appreciate the importance of this heritage. Did different archaeophytes arrive in different parts of Britain as farming spread from different parts of Europe? When exactly did different species arrive? To what extent are present patterns of distribution 'fossilized' from former distributions? These are just a few of the interesting questions we now need to answer.

In Wales today, there is such an emphasis on grazing that it's easy to forget how important arable agriculture was in the past. During the Neolithic, the Iron Age and the Middle Ages, cereal growing in Wales was extensive, especially in lowland coastal areas such as Gower, the Pembrokeshire and Ceredigion coast, the Llŷn peninsula and Anglesey. Farms would have been mixed, with arable fields alongside those for livestock. Arable production in Wales reached its peak around the time of the Napoleonic wars, when a run of warm summers allowed cereals to be grown in the uplands. Huge areas were being cultivated with wheat, barley and oats at this time, along with a diversity of arable flowers.

Today when we look at arable plants in Wales, we are seeing just a fragment of this past. The intensification of agriculture and grant-assisted revival in sheep and cattle grazing has led to shocking declines in some species, many of which now cling on at just a few sites around the coast. Red hemp-nettle *Galeopsis angustifolia* has been recorded from 50 sites in Wales in total, but is now known from only seven. Similarly, small-flowered catchfly *Silene gallica* has been recorded from 74 sites, but now grows at only 13. Most famously, downy hemp-nettle once had a stronghold in Britain in corn-fields between Bangor and Y Felinheli, but was last seen at one of these farms in 1975 – the final British record.

These declines are due to the conversion of arable fields to pasture, the use of herbicides, the application of fertilizer (which leads to a highly competitive crop) and to improved seed-cleaning techniques. Not all weeds are affected by this barrage of control in the same way. Some have developed resistance to herbicides, or are actually encouraged by nitrogen-rich fertilizers. Thus our fields have become dominated by weeds like cleavers *Gallium aparine* and chickweed *Stellaria media*. While a few nice species like field pansy *Viola arvensis* and sharp-leaved fluellen *Kickxia elatine* can be found around field edges and in gateways, many more have gone.

But all is not lost. When surveyors get onto farms to identify the best areas and what species we have left, it is amazing what can still turn up. Until last year, broad-fruited cornsalad *Valerianella rimosa* was thought to be extinct in Wales, until it was found by chance by Andy Jones on a farm in the Gower! We hope that BSBI Vice-county Recorders will be allowed onto many farms in the Tir Gofal Scheme this year to survey them in detail, and Plantlife is producing a special survey form so that Tir Gofal Officers can flag-up potentially interesting sites in advance of a major survey of arable fields in partnership with the BSBI next year.

Another encouraging sign comes when botanists work closely with farmers, and the latter cultivate a pride in the fact that they are the sole custodians of these species. Without their help and support, the outlook for these species is very bleak. Financial and advisory support is now available to landowners taking arable options within Tir Gofal, encouraging them to leave field margins unsprayed and unfertilised. Plantlife and CCW have produced a management leaflet and poster, *Farming for Arable Flowers*, which aims to provide advice to farmers wanting to create such conservation headlands.

There are also signs that the plight of arable flowers in Britain is being recognised. Recently, the Global Strategy for Plant Conservation was adopted by all the signatories of the Rio Convention. This Strategy sets out 16 very clear targets for each country to achieve by the year 2010. Target 6 states that, "At least 30 per cent of production lands must be managed consistently for the conservation of plant diversity". In seven years time, 30 percent of all the fields you drive past into work each morning could be managed with conservation in mind. This is a tall order, but it could bring huge benefits to our beleaguered arable flowers. These emblems of our ancient farming history would add colour and interest to the countryside, as poppies and cornflowers return to our fields.

Trevor Dines is Swyddog Plantlife Cymru – Plantlife Wales Officer. Copies of the *Farming for Arable Flowers* leaflet and poster are available from Trevor c/o Countryside Council for Wales, Maes y Ffynnon, Penrhosgarnedd, Bangor, LL57 2DW, 0845 1306 229.

Natur y byd

Cofiwch y blodau tir âr

Mae blodau tir âr wedi lleihau'n arw yng Nghymru, oherwydd pori, hadau glanach a defnydd o chwynladdwyr a gwrtaith. Felly, mae planhigion fel y gludlys amryliw a'r penboeth culddail wedi diflannu o fwy nag 80% o'u safleoedd a phenboeth yr yd wedi mynd o'i unig gadarnle Prydeinig ger Bangor. Ond mae gobaith, am fod ymchwilwyr yn gwneud darganfyddiadau rhyfeddol (fel llysiau'r oen llyfn y tybid ei fod wedi diflannu) ac oherwydd y cydweithio sy'n gallu digwydd rhwng botanegwyr a ffermwyr. Mae Strategaeth Fyd-eang newydd yn dweud y dylai 30% o dir cynhyrchiol gael ei reoli er mwyn cynnal amrywiaeth planhigion.

Marine *matters*

Welsh Islands Round-up: Ramsey Island

Compiled by **Geoff Gibbs** from material provided by wardens **Ian Bullock** and **Simon Avery**.

Ramsey lies two miles west of St David's. It has superb coastal scenery and a wide range of breeding birds including auks, shearwaters, kittiwakes, choughs, lapwings and wheatears. Red deer roam the hills and grey seals pup on the beaches.

An RSPB nature reserve, it is open to day visitors from 1 April to 31 October, except on Fridays. For information on sailing times, phone 01437 721686. Anyone wishing to work on the island as a volunteer should contact the RSPB HQ at The Lodge, Sandy, Beds. Volunteers live in a bungalow with a splendid view across Ramsey Sound to St David's and the mainland.

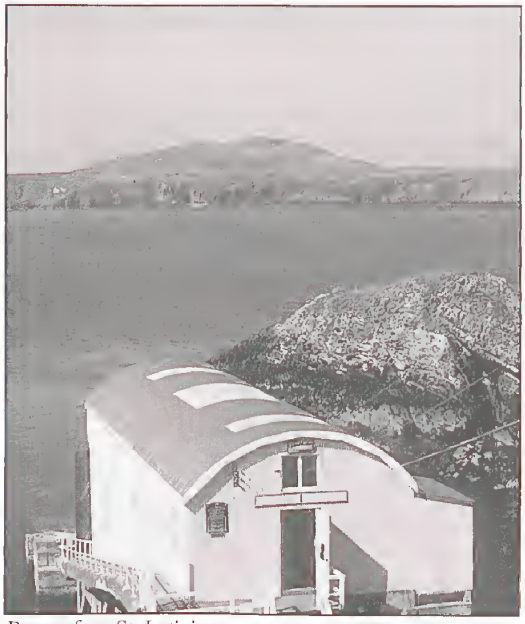


Photo: Geoff Gibbs.

Ramsey from St. Justinians.

Breeding lapwings and how to help them

Lapwings in Pembrokeshire have declined at an alarming rate, and Ramsey now supports the last healthy breeding population in the county. Around ten years ago there were 50 pairs in the county, with 25 on Ramsey, but in 2002 Ramsey was down to eight or nine pairs. Six of the nests in 2002 were in patches of heather burnt the previous year; the sitting adult lapwings were well camouflaged against the scorched background, with its small clumps of heather.

Photo: Geoff Gibbs.

The Bitches and Whelps.

Breeding success over the years has been poor, even though determined efforts have been made to identify causes of failure. Eight chicks were reared in 2002, the best result for many years. As crows and magpies are known predators of lapwing chicks here, a Larsen trap is being tried for corvid control.

In the future, the island wardens are planning to create a network of shallow ponds in what was previously an impenetrable tussocky mire. Livestock trampling should create paths and open ground to increase the feeding habitat for chicks, which can still hide in the surrounding thick vegetation.

Bitches and Whelps

One spectacular feature of Ramsey is the Bitches and Whelps reef, jutting out across the Sound from near the harbour. The flooding 6-knot tide pours over the rocks, which effectively form a weir. Canoeists come from far afield to test themselves in the tide race, and a white cloud of gulls and terns feeds in the disturbed water below the rocks. The smooth water south of the reef is a good spot for watching harbour porpoises as they feed.

Predators and their prey

Kittiwakes did very badly in 2001, with no young fledged from over 400 nests. Great black-backed gulls were thought to be involved, and the following June they were seen swooping repeatedly into the kittiwake ledges, panicking all the adults into the air at once. This had a devastating effect on the overall breeding success, but the largest colony, at Ogof Glyma, managed to survive; here 101 young kittiwakes fledged from 115 nests.

Peregrines nest on the high western cliffs. Three young were reared in 2002, fed on seabirds and the ever-numerous (and multi-coloured) rabbits. Derek Ratcliffe, in his monograph on the peregrine, mentions preying on rabbits as being a particular feature of coastal pairs in Pembrokeshire.

Wheatears and choughs both doing well

Wheatears (81 pairs in 2002) have been increasing in recent years, probably benefiting from the brown rat eradication programme carried out recently. Could this be the highest density in the country, at one pair per three hectares? By contrast, Bardsey, now under-grazed for optimum wheatear feeding habitat, was down to a mere four pairs in 2002.

Ramsey's seven pairs of choughs reared 12 young in 2001 and 13 last year. A big flock of non-breeders stayed on the island all summer in 2001. They fed steadily in the northern pastures, probably on the leatherjackets present in the turf.

Source: Friends of Ramsey Newsletters, published in Spring and Autumn.

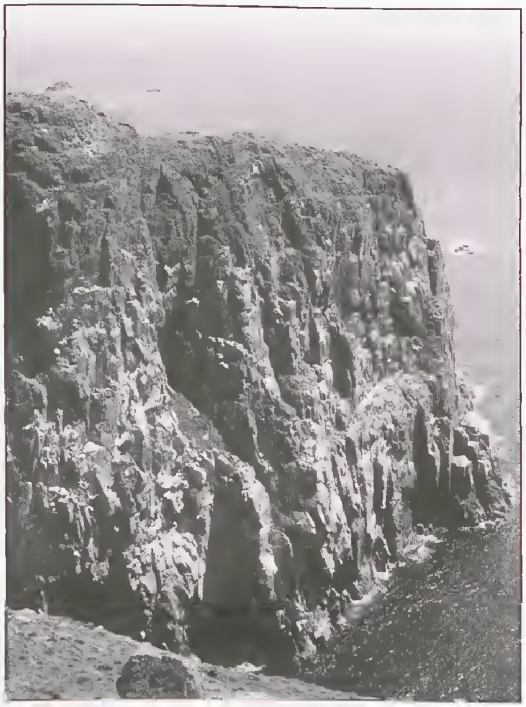


Photo: Geoff Gibbs

Materion morol

Ynys Dewi

Cafwyd wyth cyw cornchwiglen yn 2002, y mwya' ers blynyddoedd yn unig seintwar yr aderyn yn Sir Benfro. Ar ôl blwyddyn drychinebus yn 2001 heb yr un cyw o 400 o nythod – oherwydd gwylanod cefnddu – cafwyd 101 o gywion gwylanod coesddu. Roedd 81 pâr o dinwen yn bridio, cafwyd tri chyw hebog tramor ac 13 o gywion brân goesgoch.

Sustainability *notebook*

Cardiff's Riverside Market – working with the local community

If your first introduction to wildlife was collecting tadpoles in a jamjar or feeding the birds in winter, you might not see an obvious connection between that and a pre-packed punnet of strawberries from Africa. But if you stop to think, you might wonder how those strawberries grew so unblemished, and how they reached your supermarket shelf from so far away, and, come to that, why do they need to be in a plastic box with a cellophane cover? How many gallons of fuel were used to transport them and to make the plastic containers? Bar codes rarely include the true environmental price of a product; on the contrary, organically-produced food is usually more expensive. But throughout Wales many communities are fighting back.

In this report on the Cardiff Riverside Market, ***Simon Michaels*** *outlines how local communities are 'helping themselves'.*

The Riverside Community Market Association (RCMA) is a non-profit, community-based organisation which was created to help local communities to get better access to fresh food, and to provide an outlet for local producers. The market has now become one of Wales' most successful farmers' markets.

The association wants to ensure that a sustainable source of affordable, fresh and locally produced healthy food is available for the residents of South Riverside and wider Cardiff. We want to help small food businesses develop, raising awareness of healthy eating, and involving minority ethnic communities in the market. This is extending the remit from a niche food event to one of much wider local social and economic significance.

Other aims include contributing to the viability of small scale and organic Welsh agriculture; promoting the value of 'local food for local people' from a health and an economic perspective; and demonstrating practically how environmental costs related to food miles and excessive packaging can be reduced.

We hope that the market will bring many social benefits, not least by creating a sense of 'community' in South Riverside and supporting better relationships between the many different groups who live in the area.

Where are we now

There are an average of twenty-five stalls selling fresh organic and locally (ie South and West Wales) grown produce and locally prepared food items.

Currently four stalls are run by local people, all from ethnic minority groups in Riverside, who have been encouraged and supported by RCMA in setting up their own small food businesses, such as selling fresh samosas. Other local people assist with the market in a volunteer capacity, developing skills, experience and confidence. It is hoped that in time they too will move towards being able to create healthy food items and generate income. In the last year, with funding from the ESF Social Risk Fund, a range of other food-related initiatives, known as Riverside Food Poverty Project, have been developed by the RCMA to improve local health, nutritional awareness, culinary skills and economic regeneration, with a focus on helping ethnic minority groups. Specific projects include researching the scope for a community garden scheme on wasteland in the Riverside area; organising a Feast of Fruit day for children at two local primary schools; and taking a group of local children for a day out at a local U-Pick Fruit Farm.

RCMA recently launched a fruit tuckshop in three local schools, as part of the Healthy Schools Project (a funded longer-term project designed to improve the health-related knowledge, skills and behaviour of our primary school children). The project aimed to promote the schools' tuckshops with new, exciting, fruity, hands-on experiences for the children. Activities were designed and led by the teachers and volunteers, providing the children with learning opportunities that would stay in the memory. The week after our project, the School Fruit Tuck shop more than doubled its takings and children were keen to try fruit new to the shop. A Pick Your Own farm visit allowed children to pick strawberries, learning about the production/distribution cycle and the environmental issues involved. A week later they were given and could buy local fruit and vegetables at our local community market, 5 minutes walk from their home.

The future

The market will, later this year, do more work on local food access. We plan to develop a co-operative community farm, where produce will be shared and perhaps also sold at the market, and this will be linked to healthy eating and exercise initiatives.

Nodiadau o'r Cynaliadwyedd

Marchnad yn ffordd o fyw

Mae marchnad ffermwyr yn ardal Glanyrafon, Caerdydd, yn llawer mwy na hynny – gan weithio gyda phobl ifanc, yr henoed a grwpiau ethnig ynglŷn â maeth a bwyta'n iach a gan hybu pobl leol i ddechrau eu busnesau bwyd eu hunain a phrynu cynnyrch lleol. Ymhlith y llwyddiannau, mae siopau ffrwythau mewn ysgolion, gweithdai coginio iach a rhad a rhwydwaith o ferched o leiafrifoedd ethnig sy'n trafod pynciau bwyd. Y cynllun nesa' yw fferm gymunedol gydweithredol i rannu a gwerthu cynnyrch.

Nature *in reserve*

Gilfach Farm Nature Reserve

Situated in a beautiful setting at the confluence of the Afon Marteg with the River Wye, in the midst of the Cambrian Mountains in mid Wales, Gilfach has a wide variety of habitats. Purchased by Radnorshire Wildlife Trust in 1987, the farm is exceptional because this wealth of semi-natural habitats and associated species have escaped the destruction of intensive farming during the latter half of the twentieth century.

The farmyard, with its longhouse, is at the centre of the reserve. The building dates back to medieval times. The farmhouse is opposite a barn which has been restored and is now a 'Nature Discovery Centre' (opened in April 2003), with lots of interactive environmental games to allow children to learn about natural history through having fun.

The terrain

Approaching from the A470 between Llangurig and Rhayader, the most striking feature is the steep mountain 'Yr Wyloer' with its rocky crags, scree slopes, heather moorland and scattered scrub. It is reputed to be the most important lichen site in Wales. A biodiversity audit carried out on the reserve between 1997 and 1999 recorded over 420 species of lichen, including at least one species new to science (Chambers, 1999).

On the opposite valley side to Yr Wyloer is the hill known as the 'Gamallt', which has a conifer plantation of Sitka and Larch. Since 1999, the area has been under reversion to native broad-leaved woodland by the process of continuous cover forestry. The aim is to convert this area back to native oak woodland over a thirty-year period by removing patches of conifer and allowing the native species to regenerate in the cleared spaces. Below this is a former plantation clear-felled about twelve years ago which has reverted to dense birch thicket. This will no doubt eventually reach the sessile oak climax vegetation, but for the present encourages bird species such as lesser redpoll.

Other on-going conservation projects at Gilfach include the restoration of a native hay-meadow. In 1992 a one hectare, agriculturally improved field was ploughed and re-seeded with seed taken from a traditionally managed SSSI hay meadow near Gilfach. Information about the precise nature of this meadow restoration has vanished into the ether, but an interesting range of species was found when the meadow was surveyed in 1997. These included a number of typical 'old meadow' species including the eyebright *Euphrasia arctico* ssp. *borealis*, a Radnorshire rarity which has only two other records in the vice-county (Woods, 1993).

Since 1999 the field has been surveyed annually by treating the meadow as one large quadrat and noting presence and absence of species and their abundance using DAFOR scores. The meadow has an artificial appearance with a ratio of forbs to grasses being about 5:1! In 2001 great burnet *Sanguisorba officinalis* was observed for the first time. It was surprising that it took a decade to appear since *Sanguisorbo* is a key component of the meadow where the seed was sourced. It is hoped that 'new' species of high conservation value may continue to emerge with perhaps greater butterfly orchid *Plotonthera chlorantha* in the next 20 to 50 years (Chambers, 1999).

Another pasture, agriculturally improved prior to purchase by the Wildlife Trust, has been converted to arable to encourage arable weeds and farmland birds. It was ploughed and sown with forage rape in 2002. The result was three new species for the reserve (all arable weeds). This may not sound that many, but in a reserve as well surveyed as Gilfach, it is quite significant. One of the species, black bindweed *Fallopia convolvulus*, is scarce in Radnorshire, being described as 'an uncommon weed of arable fields, gardens and rubbish tips' in the county flora (Woods, 1993).

Julian Jones is
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References

Woods, R.G. 1993.
Flora of Radnorshire.
National Museum of Wales, Cardiff.
Chambers, S.P. 1999.
Gilfach Management Plan.
Internal Report.

Natur mewn gwarchodfeydd

Gwarchod yn y Gilfach

Mae Gwarchodfa Natur Gilfach wedi osgoi effeithiau ffermio dwys diwedd yr 20fed ganrif. Ar fynydd serth y Wyloer, cafwyd 420 math o gen, gan gynnwys un cwbl newydd, ac mae'r Gamallt gyferbyn yn cael ei throi'n ôl at goedydd brodorol. Ymhlith prosiectau eraill, mae cae a hadwyd gyda had o weirglodd draddodiadol a chae wedi'i drin i hybu chwyn tir âr. Agorwyd Canolfan Ddarganfod Natur i blant yn y ffermdy ym mis Ebrill.

Hysbysfwrdd / NoticeBoard

Mehefin/June 21-27:
Wythnos Llwybrau
Cymdeithas y Cerddwyr
Digwyddiadau i dynnu sylw at y broblem o fod â llwybrau wedi eu cau neu lwybrau peryglus.
Ramblers' Association
Footpaths Week
Events to highlight the problem of blocked or dangerous paths.
www.ramblers.org.uk
Carys Roberts 029 2034 3535

Professional & Public Training Courses at Plas Tan y Bwlch, Snowdonia National Park Authority Environmental Studies Centre, Maentwrog. A full programme of courses up to March 2004 is available: tel 0871 871 4004 or visit **www.plastanybwlch.com**

Learn about butterflies with Butterfly Conservation. There are many varied events and volunteers are neeeded throughout the summer.
South Wales: 10, Calvert Terrace, Swansea 01792 642972
North Wales: Alan Wagstaff
NaturalDTP@aol.com (events) or Jan Miller 01352 711198
Jan@7wells.org

Dare Valley Country Park, Aberdare
Have a look at breeding peregrines at the site: live pictures are transmitted from the nest to the visitor centre between 10.00am and 6.00pm. This project was launched by Iolo Williams on 23rd April 2003
http://news.bbc.co.uk/1/hi/wales/south_east/2969441.stm

Gorffennaf/July 11: Plas Tan y Bwlch Seremoni wobrwyo *Cystadleuaeth yr Ardd Fywyd Gwyllt Orau yn Eryri.*
Prize giving ceremony for *The Best Wildlife Gardening in Snowdonia Competition.*

July 17/18:
Local Issues Advisory Group Seminar, University of Wales, Swansea. For anyone involved in Local Biodiversity Action in Wales. Tel 01248 385743

Gorffennaf/July 21-24:
Y Sioe Frenhinol/The Royal Welsh Show. Maes y Sioe Frenhinol, Llanfair ym Mualit/Royal Welsh Showground, Builth Wells
Ffôn/Tel 01982 553683
ebost/email **requests@rwas.co.uk**
www.rwas.co.uk

Photo: Kirk Rob.

Pole lathing.

30 Gorfennaf/July
Woodland Craft Day at Coed Nant Gwernol, Nr Abergynolwyn. See pole-lathing and other traditional woodland crafts taking place, and try your hand yourself. See how the new steps at this site were made, by splitting wood. This event marks the official opening of the footpaths at the Coed Nant Gwernol. Details from **roryfrancis@woodland-trust.org.uk** or 01766 832563

Awst/August 2-9:
Eisteddfod Cenedlaethol/
National Eisteddfod. Maldwyn a'r Gororau/Montgomeryshire and the Marches Ffôn/Tel: 029 2076 3777

Awst/August 12-13:
Sioe Ynys Môn/Anglesey County Show.
Ffôn/Tel 01407 720072
ebost/email: **info@angleseyshow.org.uk**

Shared Earth Trust
Dewch i ddysgu am fywyd gwyllt a sut i greu cynefinoedd yng **Nghanolfan Gwarchod Fferm Denmarc** yn Llambed. Learn about wildlife and habitat creation at the acclaimed **Denmark Farm Conservation Centre** at Lampeter. I gael manylion, cysylltwch â/for details contact: 01570 493358, ebost/email:
set@denmark-farm.freeserve.co.uk
neu ymwelwch ag/or see
www.shared-earth-trust.org.uk

Gwent Wildlife Trust Identification Training Programme. A wide range of courses, led by recognised experts in their field, throughout the summer. Places on courses must be booked. For full details phone 01600 715501

Ngwarchodfa Natur Genedlaethol **Fenns, Whixall & Bettisfield Mosses** National Nature Reserve. Pam nad ewch chi ati i archwilio un o gyforgorsydd mwyaf Prydain ar y ffin rhwng Wrecsam a Swydd Amwythig? Why not explore Britain's third largest raised bog on the Wrexham/Shropshire border? I gael manylion ynghylch digwyddiadau a llwybrau cysylltu/for details of events and trails contact 01948 880362 neu/or **joan.daniels@english-nature.org.uk**

Gwasanaeth Cefn Gwlad Conwy/Conwy Countryside Service I gael manylion ynghylch teithiau cerdded a gweithgareddau eraill, gan gynnwys rhai ar gyfer plant ffoniwch/For details of walks and other activities, including some for children, phone 01492 575200

Hydref/October 18:
Welsh BTO Regional Conference, Machynlleth, for BTO members and ringers. Details from the BTO 01842 750050 or by email:
jae-morgan@beeb.net

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£3.50

www.naturcymru.org.uk